

PART II.—FISHES.

FISH forms a very important part of the food of the people of Guam. There are no fish markets, however, the entire catch being divided up among those who take part in the fishing. The natives have quite a large number of pens, traps and nets. Several large seines of moderate mesh were seen in use. But the favorite way of fishing seemed to be with the small circular net, which is thrown by the fisherman as he walks along the beach.

It is recorded¹ that in former times "the natives caught and dried great quantities of fish," a grand fishing fiesta being held at certain seasons of the year. The method employed on these occasions being the poisoning of the fishes by using the juice of a native tree (*Barringtonia speciosa*). The Spanish authorities, however, finding that this was depleting the waters, by killing young as well as old, abolished this method in 1894. When the Americans took possession the law was considered obsolete. By chance I was present at the first of these fishing fiestas that had taken place for seven years. Fully seven hundred people took part in the fishing. An immense deep pool, several hundred feet across, a short distance inside the reef, was surrounded by a line of seines. At low tide about one barrel of this poisonous juice was poured into the pool. The effect was almost instantaneous; hundreds of fishes came gasping and struggling to the top of the water where they were captured and killed by the natives. No ill effect seemed to follow the eating of these poisoned fish. Thousands of small fishes were killed, and it is to be hoped our Government will put a stop to this wholesale destruction of fishes.

In the arrangement and measurement of species in the following paper I have followed Jordan & Evermann, in their work on "The Fishes of North and Middle America." I wish to express my obligations to Prof. Wm. T. Brigham, Director of the Bernice Pauahi Bishop Museum, for many valuable suggestions and kindly assistance. Many thanks are also due Dr. David Starr Jordan for looking over and supplying corrections to my MS.

¹ Government Archives, Guam.

FAMILY **OPHICHTHYDIDÆ**.—SNAKE EELS.GENUS **OPHICTHUS** THUNBERG & AHL.43. **Ophicthus colubrinus** (Ahl).

Head 9 into distance from snout to vent; cleft of mouth of median width; lips fringed. Teeth in jaws and on vomer obtuse, with rounded crowns, in 2 rows; dorsal fin commencing in front of gill openings; pectorals rudimentary. Color in spirits: Grayish, with about 35 brownish rings over back and sides; the older specimens have round spots in the interspaces between the rings, or the rings may become more or less broken up into roundish spots. Two specimens 6-13 inches. Guam, June 2, 1900. *Hab.* Red Sea, Andaman to Malay Archipelago, Marianas.

FAMILY **MURÆNIDÆ**.—MORAYS.GENUS **MURÆNA** (ARTEDI) LINNÆUS.44. **Muræna nigra** Day.

Head about 4.50 into the distance from tip of snout to anal opening. Body elongate; the trunk and tail of about equal length; Teeth biserial; mandible with about 20 teeth on each side; dorsal and anal moderately developed. Color in spirits: Uniform black, no light edge to fins. One specimen in poor condition. Length 8.50 inches. Guam, July 14, 1900. *Hab.* Andamans, Western Pacific, Marianas.

45. **Muræna tile** Ham.

Young: Head about 6 times from tip of snout to anal opening; the tail and trunk of about equal length. Body elongate. Teeth pointed; eye 2 into snout. Color in spirits: Brownish yellow, slightly lighter below. Two specimens. Length about 4 inches. Guam, June 2, 1900. *Hab.* Seas of Bengal to Malay Archipelago, Marianas.

GENUS **ECHIDNA** FORSTER.46-48. **Echidna uniformis** sp. nov.

Head, from gill openings to tip of snout, 3.20 into length anterior of vent; snout 5.20 into head. Body elongate, cylindrical; branchial openings small; tail much longer than trunk; nostrils lateral. Teeth blunt, in double rows in jaws and on the palate; dorsal beginning about the length of head posterior of the gill openings; the anal beginning just posterior of vent. Color in life: A uniform yellowish white, with a slight tint of pea green. Speci-

mens fade but little in spirits. Three specimens. Length 6-8 inches. Guam, June 2, 1900. *Hab.* Guam. No. 47, B. P. B. M., is the type of species.

FAMILY **ELOPIDÆ**.—TARPONS.

GENUS **MEGALOPS** LACÉPÈDE.

49. **Megalops cyprinoides** (Brouss).

Head 3.66; depth 4.50; eye 3; interorbital 5; maxillary 1.66, equal in length to mandibles; D. 11 18; A. 11 22; P. 15; scales 5-35-5, maxillary extending to posterior of eye; branchiostegals 25; tubes of lateral line branched. Body oblong and compressed; mouth oblique, lower jaw prominent; a thin plate of bone attached to symphysis of the mandible of lower jaw and extending back between rami. Teeth villiform in jaws, on tongue, vomer, palatine and pterygoid bones. Fins: One dorsal fin with the posterior ray greatly elongate—greater than length of head; the dorsal situated above the ventrals, which are abdominal; base of dorsal 1.50 into base of anal; caudal well forked; pectorals very low, their length 1.33 into head. Color in spirits: Silvery, darker above, with slight wash of bluish green; margins of fins more or less dusky. One specimen. Length 8 inches. Guam, July 14, 1900. *Hab.* China, Polynesia, Seas of India, Ceylon, Marianas.

FAMILY **SYNODONTIDÆ**.—LIZARD-FISHES.

GENUS **SYNODUS** (GRONOW) BLOCH & SCHNEIDER.

50. **Synodus variegatus** (Quoy & Gaim.)

Head 3.50; depth 5.50; eye 7; interorbital about equal to eye; mandible 1.33 into head; snout 4; D. 12; A. 9; scales about 65 in lateral line. A small adipose fin without rays. Body sub-cylindrical, slightly elongate; interorbital space concave; gill openings very wide. Teeth sharp, directed back, numerous in jaws, tongue, palatine—those on palatine in a single row. Fins: Caudal, forked; dorsal fin slightly longer than high; tip of ventrals on a line with posterior base of dorsal; pectorals very short, 2.50 into head; the series of scales on the tail are not keeled. Color in spirits: Grayish above, white below; about 10 wide greenish bands over the back down on sides to below the axis; vertical fins with brown dots forming streaks; head more or less mottled with greenish, with 3 or 4 greenish splotches along sides of jaws, and 3 spots on under rami of jaws. One specimen. Length 5 inches. Guam, July 13, 1900. *Hab.* Indian and Pacific oceans, Marianas.

FAMILY **ESOCIDÆ**.—NEEDLE-FISHES.GENUS **TYLOSURUS** COCCO.51. **Tylosurus annulatus** Cuv. & Val. **Gar-fishes.**

Head 2.50; D. 23; A. 21; V. 6; eye 2 into postorbital length of head. Teeth rather strong, none on the vomer; scales thin and small; lateral line forming a keel along the free portion of tail. Color in spirits: Back and upper part of head green, with slight wash of steel blue; sides and belly silvery white; dorsal dusky; caudal with a dusky centre; remaining fins whitish; pectorals with an indistinct blotch at base. One specimen. Length 14 inches. Guam, July 14, 1900. *Hab.* Red Sea, Seas of India, Malay Archipelago, China, Marianas, North Australia.

FAMILY **HEMIRAMPHIDÆ**.—BALAOS.GENUS **HEMIRAMPHUS** CUVIER.52. **Hemiramphus limbatus** Cuv. & Val.

Head 3 or a little less; depth 3.50 into head; eye 4.50; snout 3.50; D. 14; A. 12; scales 54. Teeth minute and in several rows in both jaws; upper jaw short, wider than long. Fins: Caudal, lobed; the lower lobe the longest; dorsal beginning slightly in advance of anal; ventrals equal to orbit; pectorals 3 into head. Color in spirits: Silvery, bluish above; a distinct silvery band which posteriorly is equal to one scale; tip of dorsal and anal dusky. Five specimens. Length 7-10 inches. Guam, June 14, 1900. *Hab.* Seas of India, China, Western Pacific, Marianas.

FAMILY **FISTULARIIDÆ**.—CORNET-FISHES.GENUS **FISTULARIA** LINNÆUS.53-55. **Fistularia depressa** Linn. **Trumpet-fish. Bagag.**

Head 2.66; depth 3.20; eye 11; interorbital 14.5; D. 15; A. 14; no scales, body nearly smooth; the upper lateral edges of snout sharply serrated; the 2 middle ridges on upper surface of snout well separated, being nearest together mesially. Color in spirits: Dirty brownish, lighter below; the young with a few scattered blue spots. Four specimens. Length 8-29 inches. Guam, June 14, 1900. *Hab.* East Indies, Australia, China, Panama, Lower California, Hawaiian Islands, Marianas.

FAMILY PRISTOPOMATIDÆ.

GENUS **SCOLOPSIS** CUVIER & VALENCIENNES.**56-59. Scolopsis lineatus**² Quoy & Gaim. **Sihig.**

Head 3.20; depth 3; eye 3; snout 3.20; mandible equal to eye; interorbital 3; D. x 9; A. III 7; P. 16; V. 1 5. Scales 3-44-12. Teeth minute, no canines. Inferior orbital with a spine directed backwards under the pupil—usually 2 or 3 smaller spines below it. Posterior margins of the opercles toothed. Body oblong, slightly compressed. Branchiostegals 5. Pseudobranchiæ developed. Gill-rakers short and blunt, 8 on lower limb. Fins: Caudal forked, the upper lobe the longest. Ventrals and pectorals of about equal length, 1.20 into head. Base of anal 3.50 into base of dorsal. About 14 rows of scales in front of dorsal fin. Color in spirits: Grayish above (in life the upper coloring is greenish), whitish below the axis. A more or less indistinct white line from snout to first dorsal spine. Two distinct white lines from above the orbit to sixth and seventh rays of soft dorsal. A third white line wider anteriorly, and more or less broken, extends from upper third of eye to just posterior of the hind margin of the dorsal fin. A fourth line forms the lower boundary to the gray coloring along the median line from eye to caudal. The upper half of pectorals has a dusky blotch, and there may be a dusky blotch, in some specimens, on the sides half way between the axis of body and the belly. Fins: All yellowish white, the spines with a bluish wash; no dark spot between first and third dorsal spines. Four specimens. Length 6-7.50 inches. Guam, June 14, 1900. *Hab.* Andamans, Malay Archipelago, Marianas.

FAMILY MUGILIDÆ.—MULLETS.

GENUS **MUGIL** (ARTEDI) LINNÆUS.**60. Mugil waigiensis** Quoy & Gaim.

Head 4; depth 4.50; eye 4.20; 1 into snout; interorbital 1.66; D. IV, 7; A. III 8; P. 14; V. 1 5. Scales 28. No adipose eyelid. Width of mouth is 2.66. Lips rather narrow, the upper lip one-half width of pupil. Body oblong, compressed, and covered with large scales. There are 16 series of scales between tip of snout and first dorsal spine. No lateral line. No true teeth in jaws. Fins: Caudal slightly emarginate. Pectorals equal to distance from posterior of head to anterior nostril. In the specimen before me the pectorals do not reach quite to the vertical of the origin of dorsal, but to the vertical of the next anterior row of scales. Ventrals and soft dorsal about equal in length, 1.50 into head. Spinous dorsal

²I have carefully compared this fish with Quoy & Gaimard's description and figure (Quoy & Gaim. Voy. Freyc. Poiss., p. 322, pl. 60, fig. 3) and am convinced the species should stand as *S. lineatus*, Quoy & Gaim.

1.66 into head. Color in spirits: Silvery, with slight yellowish wash, slightly darker above. Pectorals dusky, with their lower margin yellowish. Anterior of anal dusky. Caudal, dorsals and ventrals yellowish white; iris yellow. One specimen. Length 13 inches. Guam, June 14, 1900. *Hab.* Red Sea, Indian Ocean, Polynesia, Marianas.

61. *Mugil axillaris* Bleek.

Head 3.50; depth 3.66; eye 3.50; interorbital 2.50; D. IV, 8; A. III 9. Scales 44. No adipose eyelid. No teeth in jaws. Pectorals reach to vertical base of dorsal, the tip of pectorals being on the 13 series of scales from the back of the head. The preorbital is indistinctly denticulate. Maxillary hidden. Snout shorter than orbit. Twenty-one series of scales between tip of snout and origin of dorsal. Caudal is slightly emarginate. Dorsal fins are of about equal length, the first dorsal spine is equal distance between tip of snout and base of caudal. Pectorals are equal in length to the distance from posterior edge of opercle to anterior nostril. An elongated scale in axis of pectorals. The origin of soft dorsal is very little behind origin of anal. Color in spirits: Silvery, with bluish wash, deeper blue on back. Ventrals white. Pectorals, dorsals, anal and caudal fins slightly dusky. One specimen. Length 3 inches. Guam, July 12, 1900. *Hab.* East Indian Archipelago, Marianas, Samoa.

62-64. *Mugil planiceps* Cuv. & Val. Agoas.

Head 4; depth 4; eye with adipose lid developed on fore and back of eye, but not extending on pupil. The clear part of eye 4.66 into head; interorbital 2.20. Scales 36; 19 series of scales from snout to first dorsal spine; D. IV, 18; A. III 9. There are 20 series of scales between origin of dorsal and tip of snout. The anterior margin of spinous dorsal is exactly midway between tip of snout and base of caudal fin. A lance-like scale above axes of pectorals. Lips thin. The pectoral fin barely reaches the vertical of base of dorsal, ending on the eighth scale of a lateral series. The soft dorsal has its origin above the third soft anal ray. Caudal rather deeply emarginate. Color in spirits: Silvery, with wash of yellowish, slightly darker above; more or less golden reflection behind eye. Pectorals white, the former with an indistinct dusky blotch at base. Caudal, dorsals and anal with more or less indistinct dusky wash. Three specimens. Length 3-6 inches. Guam, May 26, 1900. *Hab.* Coasts of Ceylon, Bengal, Hindostan, China, Marianas.

GENUS *SPHYRÆNA* (ARTEDI) BLOCH & SCHNEIDER.

65. *Sphyræna obtusata* Cuv. & Val.

Head 3; depth 8.50; eye 5.33; maxillæ 2.30; mandible 1.50; interorbital equal to eye; snout 2.20 into head; D. V, 19; A. 18. Scales 92, extending over opercles and cheeks. Body rather elon-

gate, sub-cylindrical. Gape of mouth deep, the lower jaw the longest. Teeth sharp-pointed in jaws and palatines, none on vomer. Fins: Interspaces between the two dorsal fins equal to one-half length of head. Caudal forked. Ventrals equal to distance from hind margin of opercle to eye. Color in spirits: Grayish green above, yellowish white below. The gray descends in a festooned edge along the lateral line, giving the appearance of about 12 dusky splotches along the sides—this is more distinct in young. The young also show indistinct dusky bands over the back. Three specimens. Length 3–5.50 inches. Guam, July, 1900. *Hab.* Seas of India to Malay Archipelago, Marianas.

FAMILY **POLYNEMEDÆ**.—THREAD-FISHES.

GENUS **POLYDACTYLUS** LACÉPÈDE.

66. **Polydactylus sexfilis** Cuv. & Val. **Bocadulce.**

Head 3.5; depth 3.45; eye 4.50, more or less covered by adipose membrane; interorbital 3.66; premaxillary 2.20; mandible 2.20; D. VIII, 1 2; A. III 12; P. 14; V. 1 5. Scales 46; lateral line continuous; 5 free articulated appendages below each pectoral fin; two separate dorsal fins. Body oblong, compressed. Muciferous system of head well developed. End of snout projecting beyond the mouth. Teeth setiform, several bands on premaxillary, vomer and palatines. Vertical margin of the preopercle strongly denticulate. Fins: Caudal deeply forked, the longest ray one-third longer than head. Short middle ray 2.50 into head. Pectoral 1.20 into head. Longest ray of soft dorsal equal to head. Color in spirits: Silvery white, slightly darker above, a dusky splotch at base of caudal. Pectorals and anals dusky. Tips of dorsals dusky. One specimen. Length 13.5 inches. Guam, June 28, 1900. *Hab.* Seas of India, Polynesia, Marianas.

FAMILY **HOLOCENTRIDÆ**.—SQUIRREL-FISHES.

GENUS **MYRIPRISTIS** CUVIER.

67-68. **Myripristis murdjan** (Forsk). **Sagamolang.**

Head 3; depth 2.50; eye 2.20; snout 2 into eye; interorbital equal to snout; D. X, 1 14; A. IV 12; P. 15; V. 1 7. Scales 3-34-6. Body oblong, slightly elevated and compressed. Teeth villiform. Mouth oblique, lower jaw projecting, with a rough nipple-like projection on each side of symphysis. Maxillary reaches to beneath last third of orbit. Preopercle serrated its whole extent. Opercle with moderately strong spine, all the posterior margin below the spine and a little way above it finely serrated. Upper surface of head roughened by about four raised lines which branch posteriorly and end in small spines. Color in life: Roseate, gill openings and

axillæ of pectorals black. Fins whitish, except a dusky blotch on tip of soft dorsal. Three specimens. Length 2-7 inches. Agaña, Guam, June 14, 1900. *Hab.* Red Sea, east coast of Africa, Seas of India to Malay Archipelago, Marianas, Hawaiian Islands.

GENUS **HOLOCENTRUS** (GRONOW) SCOPOLI.

69. *Holocentrus diadema* Lacép.

Head 3.20; depth 3; eye 2.50; interorbital equal to snout, 4.20 into head. Maxillary 3 into head and reaching to a line beneath the anterior margin of pupil. The upper processes of intermaxillaries end scarcely posterior of anterior margin of eye. D. XI 13; A. IV 9; P. 15; V. I 7. Scales 3-48-8; a single vertical row of 9 scales on the opercle. Orbital, opercular and preopercular bones serrated. The preorbitals have a large spine anteriorly; two opercular spines, the upper of which is much the stronger. The preopercular spine is 2.66 into vertical margin of preopercle and 2 into eye. Fins: Caudal well forked; the third, fourth and fifth dorsal spines the longest, about equal to longest ray of soft dorsal; third spine of anal much the longest, 1.20 into head, about equal in length to ventral fin. The scales on the sides of anal fin are much elongated and serrated. Color in life: Red, with lighter longitudinal lines. Color in spirits: Silvery grayish, darker above, with about 10 lighter longitudinal lines. Dorsal fin black, with a white longitudinal line through the middle, also an indication of light coloring on margin of fin. The web between third and fourth anal spine is black, otherwise all the fins are uniform yellowish white. Three specimens. Length 2.50-5.50 inches. Guam, July 28, 1900. *Hab.* Red Sea, Ceylon, Chinese Sea, Indian Archipelago, Marianas.

70. *Holocentrus operculare* Cuv. & Val.

Young: Head 3.20; depth 3; eye 2.50; maxillary equal to eye; interorbital 3.50 into head; D. XI 13; A. IV 10. Scales 37. Opercles and preopercles serrated, the preopercle spine equal to diameter of eye, and much smaller than the two spines of the opercles. Color, red; in spirits, a silvery grayish, slightly darker above. All the fins yellowish white, except the spinous dorsal which is black with white lines between the spines. One specimen, very young. Length 2 inches. Guam, July 23, 1900. *Hab.* Sea of New Ireland, Banda, Marianas.

71. *Holocentrus binolatum* Quoy & Gaim. *Cholog.*

Head 3; depth 2.66; eye 2.50; snout about equal to interorbital; D. XI 14; A. IV 9; P. 14; V. I 7. Scales 4-46-8. Opercles, preopercles, and orbitals with posterior and lower margins serrated. Maxillary reaching the posterior margin of pupil 2.20 into head. Mandible 1.66 into head. Preopercular spine long and strong, about

twice as long as the two opercular spines. Preorbital with a strong spine anteriorly, and another not quite so strong under the anterior third of pupil. Fins: The third, fourth and fifth dorsal spines are longest, but are only two-thirds as long as third anal spine, and are rather shorter than the soft dorsal. Caudal well forked, the lobes equal. Pectorals slightly longer than ventrals, 1.25 into head. Color in spirits: Silvery whitish, with wash of yellowish. About 12 indistinctly darker stripes on body. Fins yellowish white, with a slightly darker splotch between the two anterior spines at base. The original description of this fish gives the dorsal fin as XI 14, and the figure in *Voy. Astrol. Poiss.*, Pl. 14, Fig. 4, gives the stripes on the body, especially on lower half, as darker red than the ground color, which is very true of the specimen before me. One specimen. Length 5.50 inches. Guam, July 14, 1900. *Hab.* New Guinea, Guam, Marianas.

72. *Holocentrus unipunctatum* Gunth. **Lesiog.**

Head 2.66; depth 2.50; eye 3; interorbital 2 into eye; snout 3.20; maxillary 2.50; D. XI 15; A. IV 10; P. 14; V. I 7. Scales 3-45-8. Opercles, preopercles and orbitals serrated. The preopercle spine, measured from scales, 1.66 into vertical limb of the preopercle, and about equal to eye; the two opercular spines of equal size and less than one-half the length of preopercular spine. Fins: The third, fourth and fifth dorsal spines the longest. Ventrals and pectorals of about equal length. Caudal well forked, lobes equal, the third anal spine the longest—2.66 into head. Color in life: Red, with about 12 slightly darker red lines. In spirits the fish becomes a dull grayish white, with very indistinct darker lines, the fins being a uniform yellowish white, except a small blotch of black between the first and second dorsal spines, near the base. One specimen. Length 5 inches. Guam, June 14, 1900. *Hab.* Polynesia, Marianas.

73-74. *Holocentrus fuscostriatus* sp. nov. **Chalak.**

Head 3; depth 3.50; eye 2.66; interorbital 4; snout 3.50; maxillary equal to distance from posterior of orbit to posterior edge of opercle; mandible 1.66; lower jaw projecting; D. X, I 12; A. IV 8; V. I 7; P. 14; C. 18, with 6 spines on each side. Scales 3-40-8; about 27 scales on preopercle, each scale with a brown spot at base. Posterior margins of opercles and preopercles denticulate, except the oblique lower half of sub-opercle. The opercle has a single vertical row of 8 scales on its anterior margin. Opercle with two spines from posterior margin, their exposed length 2 into pupil, a minute spine just above these two; lower margin of interopercle finely toothed; lower angle of preopercle with flat spine, its exposed length from scales 2 into orbit, 2.50 into horizontal length of preopercle. Pre-orbitals and sub-orbitals strongly denticulate. Mouth protracted.

Groove for the posterior processes of the intermaxillaries reaches to a line with the anterior margin of the pupil. No spine on snout. Teeth: Bands of villiform teeth on jaws, vomer and palatines. On top of head just posterior of eyes about 8 raised lines form a fan-shaped area on each side. Fins: The second dorsal spine is the longest, equal to distance from base of anterior dorsal spine to base of sixth dorsal spine. The first dorsal spine 2 into head, the last 2.50 into orbit. Third anal spine the longest, 1.33 into head. Soft dorsal and pectorals of about equal length, 1.66 into head. Ventrals 1.50 into head. Color in life: General color silvery, slightly darker above, with a wash of purplish red and gold, the scales with a splendid opalescent reflection, each side with 10 very distinct dusky lines which have a wash of purple madder. The lateral line, which is slightly the widest, is a brighter red with less of dusky. Top of head deep red. Spinous dorsal reddish with a big black splotch between the 4 anterior spines. A row of triangular white spots between the spines near base, and a marginal line of white. Soft dorsal yellow, with the two anterior rays red. Four outer rays on each margin of caudal red, the inner part yellow. Anal yellow, the fourth spine and first ray red. Pectorals pinkish. Belly and ventral fin white. Twenty-five specimens. Length 2-7 inches. Guam, July, 1900. The young are similar in color, with the lines not quite so distinct, and with two dusky blotches over each eye. Type specimen No. 73, B. P. B. M. *Hab.* Marianas.

75-76. *Holocentrus microstoma*³ Gunth.

Head 3.20; depth 3.50; eye 2.66; snout one-third less than eye; maxillary equal to eye; mandible 2 into head; D. XI 1 10; A. IV 9; P. 16; V. I 8. Scales 3-54-8; 8 series of scales in front of dorsal. Preopercles scaled. Opercle with a single vertical row of 8 scales which are deeply toothed posteriorly. Gill-rakers moderate, 12 including rudiments on lower limb. Hind margins of all the opercles, preopercles, the post, sub and preorbitals strongly serrated on their posterior or lower margins. Lower edge of preopercle with a prominent spine, the free portion from the scales measuring 2.20 into vertical limb of the preopercle, from lower margin of spine. Two prominent opercular spines, the upper much the largest. A prominent spine at the anterior end of preorbitals. Mouth projectile, lower mandible slightly the longest. Grooves for the posterior processes of the intermaxillaries ends anterior of a line with front of pupil. The turbinal bones end in prominent processes. Teeth villiform. Fins: Caudal well forked, with six small spines at base of each margin. Third anal spine the longest, equal to depth of the fish. Fourth and fifth dorsal spines the longest, 1.55 into head: the first dorsal spine is about equal to eye, and the last is equal to pupil. Pectorals 1.50 into head. Anterior rays of the

³Specimens from Guam show that *H. binotatum* and *H. microstoma* are distinct species.

soft dorsal are the longest, being equal in length to the fourth dorsal spine; the anterior rays of soft anal are also the longest, being equal to length of pectorals. Color in life: Red, with about 12 whitish longitudinal lines, most distinct on upper surface. Color in spirits: Silvery gray, with lighter longitudinal lines; fins all uniform yellowish white, except spinous dorsal, which has a rather narrow white margin and an intermarginal line of black, below which is another line of white. Two specimens. Guam, July 14, 1900. *Hab.* Polynesia, Marianas.

FAMILY MULLIDÆ.—SURMULLETS.

GENUS MULLOIDES BLEEKER.

77. *Mulloides flavolineatus* Lacép. *Salmoneti*.

Head 3.50; depth 4; eye 4; interorbital 3.50; width of maxillary at end 1.66 into eye; D. VII, 9; A. II 6. Scales 2-37-6. Body oblong, slightly compressed. Villiform teeth in both jaws, no teeth on vomer or palatines. Interorbital space flat. Barbules thick, reaching to angle of preopercle. Opercular spine small. Fins: Pectorals 1.50 into head. The longest dorsal spine 1.30 into head; the longest dorsal ray 2.20, equal in length to longest anal ray; 5 rows of scales between the two dorsal fins. Color in spirits: Back dusky, with slight wash of reddish; sides and belly with wash of yellowish, and indication of a yellowish line along sides. One specimen, length 11.5 inches; 14 young, length 3 inches. In some of these young the yellow band from head to caudal shows very distinctly. Guam, June 2, 1900. *Hab.* Red Sea, through India to Malay Archipelago and beyond, Marianas.

78. *Mulloides samoensis* Gunth.

Head 3.50; depth 3.50; eye 3; interorbital 3.66; mandible 3.50 into head; D. VII, 9; A. II 6. Scales 2-40-7. Villiform teeth in jaws in several series, no teeth on vomer or palatines. Fins: Pectorals 1.50 into head, equal in length to the longest dorsal spine. Longest dorsal ray 2 into head. Ventrals 1.30 into head. Barbules reaching to angle of preopercle. Color in spirits: Silvery white, a bluish wash above, a small dusky splotch on sides just below the ninth and tenth scale of the lateral line—the tips of the pectoral fins reach to the centre of this spot. An indistinct dusky blotch on interorbital region. One specimen. Length 4.50 inches (color much faded). Guam, June 2, 1900. *Hab.* Samoa, Marianas.

GENUS UPENEUS CUVIER.

79. *Upeneus multifasciatus* Quoy & Gaim.

Head 3.20; depth 3.20; eye 5.50; interorbital 3.50; maxillary 2.20, its width at end greater than eye; D. IX, 9; A. 7. Scales 2-30-6. Barbules long, reaching within two rows of scales from base of ven-

trals; two rows of scales between the two dorsal fins. Body oblong, compressed, the upper profile quite convex. Teeth in a single row in jaws, no teeth on vomer or palatines. A small opercular spine. Fins: Posterior rays of soft dorsal prolonged, 1.66 into head. Third dorsal spine the longest, 1.50 into head. The pectorals and ventrals are about equal in length. Color in spirits: Upper color brownish, with indication of purple. A brown line down snout through eye. A broad saddle of black on the caudal peduncle; another broad black band descends from the anterior half of soft dorsal. There are also indications of two or three more or less amalgamated broad black bands in front of this. Under surface yellowish white. Spinous dorsal dusky. Inner half of soft dorsal black, outer half marked with two or three longitudinal pale bluish lines. Pectorals cadmium yellow. Ventrals with external rays bluish, inner ones yellow. Anal bluish with 4 or 5 lighter longitudinal lines. Caudal dusky. One specimen. Length 8 inches. Guam, July 19, 1900. *Hab.* Seas of India, Malay Archipelago, Polynesia, Marianas.

80. *Upeneus saffordi*⁴ sp. nov. *Salmoneti*.

Head 3; depth 3.25; eye 5.66; interorbital 4; maxillary 2.50, its width at end equal to eye. Scales 2-30-7; D. VIII, 1 8; V. 1 5. Barbules long, reaching to base of ventral fins. Body oblong, compressed, the upper profile quite concave. Snout rather sharp-pointed. The distance from the anterior margin of orbit to tip of snout 1.86 into head. Teeth in a single row in each jaw, no teeth on vomer or palatine. Three series of scales between the two dorsal fins. A small preopercular spine. Fins: Spinous dorsal and ventrals of about equal length, 1.25 into head. Second ray of soft dorsal 2 into head, equal in length to base of fin. Base of anal 2.50. Pectorals 1.60 into head, their base equal to shortest ray, their tip reaching to a line with the tenth scale of lateral line. Caudal well forked, the longest ray 1.25 into head. The posterior rays of the anal or dorsal are not prolonged. Color in life: Uniform cadmium yellow, with a saddle of bright yellow extending over the upper part of caudal peduncle and down to the lateral line, with two distinct bluish lines from eye, two-thirds of the distance down sides of snout. Color in spirits: Uniform yellowish white, a whitish saddle over top of caudal peduncle down to lateral line, a dusky reddish splotch covering sides of snout. Fins all uniform light chrome; iris bright yellow. The young are similarly colored, but without the yellow marking on caudal peduncle so distinct. Two specimens. Length 6.50-3.00 Agaña, Guam, July 14, 1900.

81. *Upeneus trifasciatus* Lacép.

Head 3.20; depth 3.20; eye 4.50; maxillary 3.66 into head. Scales 2-30-6; D. VIII, 9; A. 7; snout blunt. Teeth in a single row

⁴Named in honor of Lieutenant-Governor W. E. Safford, U. S. N., of Guam, in recognition of his interest and work in Polynesian natural history.

in jaws, none on vomer or palatines. Barbules reaching about to angle of preopercle. Fins: Spinous dorsal 1.50 into head. Longest ray of soft dorsal 2 into head. Two rows of scales between soft and spinous dorsal. Color in spirits: Scales of upper surface more or less edged with brownish, below yellowish white. A brown line from end of snout through eye to below soft dorsal fin; back of the head this brown line is accompanied on each side by a yellow line of almost equal width. A dusky saddle over free portion of tail, with a yellowish spot between it and the soft dorsal. A more or less dusky line down posterior margin of preopercle. Base of opercular spine dusky. One specimen. Length 8 inches. Guam, May 26, 1900. *Hab.* Indian Ocean, Polynesia, Marianas.

FAMILY CARANGIDÆ.—POMPANOS.

GENUS CARANX LACÉPÈDE.

82. *Caranx ascensionis* (Forst.). *Tarakita*.

Head 3.33; depth 2.66; eye 5.33, 2 into snout; interorbital 4; D. IX, 1, 22; A. II, 1 19; V. I 5. Scales about 58 to the beginning of the plate-like scales which arm the posterior half of the lateral line; there are 48 of the plate-like scales which begin on a line of the fifth dorsal ray. Body oblong, compressed. Mouth protractile, the lower jaw slightly the longer. Maxillary broad, almost as wide as eye. Preopercle not serrate. Branchiostegals 7. Pseudo-branchiæ present. Teeth: The teeth in the upper jaw in villiform band, with an outer series of stronger ones; those of the lower in a single series; minute teeth also on palate and tongue. Fins: The dorsal consists of a recumbent spine followed by seven rather weak spines, all connected, the longest being 2.75 into head; following these and scarcely connected with them is a short strong spine about midway between the spinous dorsal proper and soft dorsal. The soft dorsal is about equal in length to anal and similar in form; the longest ray is contained 1.33 into head, being a little longer than the first ray of anal; there are no detached rays. The pectorals are long and falcate, their length greater than head, 3 into total length. Ventrals short, 2.50 into head. Caudal well forked, lobes equal, 4 into total length. The body is finely scaled, there being no bare area in front of ventrals. Lateral line strongly curved, the curved portion 1.50 into straight. Color in spirits: Silvery with a slight wash of yellowish. Pectorals yellow. Dorsal and anal bluish. The outer rays of caudal seem to have more or less yellowish wash. One specimen—length 13 inches—and 13 young 2.50–4.50 inches, were taken near the reef. Guam, July 9, 1900. The young are unstriped and have more bluish on the back, and the fins with less color. *Hab.* Gilbert Islands, Marianas.

83. Caranx sexfasciatus Quoy & Gaim.

Head 3.33; depth 2.50; eye 3.50, 1 into snout; interorbital 3.66; D. VIII, 1, 1 21; A. II, 1 19. Scales numerous, plates 33. Lateral line strongly curved, the curve 1.66 into straight portion. Lower jaw slightly longer than upper. Breast scaly. Teeth of upper jaw form a villiform band, an outer series of larger ones also present, a single row in lower jaw, small teeth on palate. Color: Silvery, bluish above, with about seven dusky vertical bands about equal to width of eye and narrower than interspace. An indistinct opercular spot. Fins yellow. Two specimens, length 4.50 inches, were taken at Agaña, Guam, July 9, 1900. *Hab.* Western Pacific, Marianas.

GENUS **LEIOGNATHUS** LACÉPÈDE.**84-86. Leiognathus obscura** sp. nov.

Head 3.33; depth 1.66; eye 2.80, 1 into snout; interorbital 3; D. VIII, 17; A. III 15; V. 1 5. Scales small, deciduous, cycloid, no scales on chest. Lateral line unarmed and but slightly curved. Body elevated and strongly compressed. Mouth protractile, upper jaw rather overhanging. Teeth minute, of equal size in jaws. Preopercle and supraorbital serrate. Two short spines on upper anterior part of orbit, the distance between two outer spines 2.50 into head. Branchiostegals 5. Pseudobranchiæ present. Gill-rakers short but wide, with many small teeth. Fins: Second dorsal spine 3.80 into length, the third dorsal spine equal in length to second anal spine, 1.50 into head. Pectorals and second dorsal spine of equal length. Ventrals small, 2 into head. Caudal well forked, lobes of equal length; caudal peduncle 4 into head. The pores of lateral line are slightly enlarged anteriorly. Color: Silvery white, bluish above. An irregular dusky splotch about the size of eye a little below the axis, above anterior anal spine. The inner bases of pectorals are black. A dusky splotch at upper edge of opercle, another at upper margin of orbit—this invades the upper part of iris, which otherwise is yellow. Snout more or less dusky with a short black line down each side from nostrils to upper lip. A dusky splotch on upper part of caudal peduncle. Fins white, a wash of yellow on caudal. Three specimens, length 3-5.50 inches, taken at Agaña, Guam, May 26, 1900. No. of type 84^B. P. B. M. *Hab.* Marianas.

FAMILY **PEMPHERIDÆ.**GENUS **PEMPHERIS** CUVIER & VALENCIENNES.**87-90. Pempheris otaitensis** (Cuv. & Val.). **Sapi sapi.**

Head (from bony margin of opercle to tip of snout) 4; depth 2.50; eye 2.25; maxillary 1.60; mandibles 1.50; interorbital 1.50 into eye; from anterior margin of orbit to tip of snout is one-half the diameter of eye; D. VI, 9; A. III 41; V. 1 5; P. 19. Scales about

68-70 in lateral line. Mouth oblique. Setiform teeth on jaws, vomer and palatines. Snout blunt. Branchiostegals 7. Fins: Anal long, its base twice into length of fish. It is placed at an angle of about 40° to the axis. The rays are short, the longest being equal to the diameter of eye. The base of dorsal is 1.66 into head, its longest ray being about equal to head. Caudal emarginate. Pectorals about equal to length of head. Color in spirits: Silvery, with a wash of reddish, each scale having a silvery margin with a sub-marginal brownish red area of about equal extent; darker above. Axis and base of pectorals black, a darker area along base of anal. Dorsal spines and tip of anterior dorsal rays black. Caudal dusky on edges, lighter in centre. Anal, pectorals and ventrals yellowish white. A more or less distinct splotch of gold just posterior of eye on opercle. Iris yellow. Five specimens. Length 3-7 inches. Guam, July 14, 1900. *Hab.* Western Pacific, Marianas.

FAMILY KUHLIIDÆ.

GENUS KUHLIA GILL.

91-93. *Kuhlia rupestris* (Lacép.).

Head 3; depth 2.66; eye 4; maxillary 2.33, no supplemental bone; mandible 1.66; interorbital 3.50; D. X 11; A. III 10; V. I 5; P. 13. Scales large, 5-44-9, lateral line complete. Body oblong, slightly compressed. Mouth large, protractile. Teeth: Bands of villiform teeth on jaws, vomer, palatines, entopterygoid and ectopterygoid bones. Tongue smooth. Gill-rakers about 16, rather short on lower limb. Branchiostegals 6. Pseudobranchiæ well developed. Opercle with two spines. Preorbital and preopercle finely denticulate, gill membranes separate. Fins: The caudal is emarginate, the lobes rounded. Fifth dorsal spine is 2.50 into head; tenth dorsal spine is much longer than ninth, its length 3 into head. Ventrals and pectorals of about equal length. Anal longer than its distance from caudal. Color in spirits: Dark silvery, bluish above, most of the scales with a blackish spot at tip or base. Caudal, anal and dorsal dusky, with a wide whitish space at tip. Ventrals white. Pectorals whitish, upper ray black. Three fine specimens, length 6-9 inches, were presented to the Museum by Lieutenant-Governor W. E. Safford, U. S. N. These were taken in fresh water at the head of the Agaña river, Guam, 1900. This is a valued food fish. *Hab.* Fresh water streams and lakes of Polynesia, Marianas.

FAMILY CHEILODIPTERIDÆ.—CARDINAL-FISHES.

GENUS APOGON LACÉPÈDE.

94. *Apogon fasciatus* Quoy & Gaim. **Lansi.**

Head 2.86; depth 3; eye 2.50; snout 50 into eye; interorbital about equal to snout; maxillary reaching beyond pupil 1.23 into

head; D. VI, 19; A. 11 8. Scales 1-28-4. Teeth villiform in jaws, vomer and palate. Body oblong, slightly compressed and elevated. Branchiostegals 7. The preopercle has a double edge, the outer one of which is serrated. Gill-rakers rather long and slender, 12 on lower limb. Fins: Caudal emarginate. Pectorals and ventrals of about equal length, 1.50 into head. The spinous and soft dorsals separate, the soft dorsal the longest. Base of anal slightly less than base of soft dorsal. Color in spirits: Yellowish white with wash of red. Four lateral longitudinal black bands on each side from head to caudal, the second and fourth lines form an arch on the base of caudal fin. A black band on base of anal, also a black band on base of soft dorsal. Other fins yellowish. Lower jaw more or less dusky. Twenty specimens. Length 1-3 inches. Guam, June 14, 1900. *Hab.* Seas of India, Malay Archipelago, Marianas.

95. *Apogon auritus* Cuv. & Val.

Head 2.50; depth 2.86; eye 3.50; D. VII, 9; A. 11 7; interorbital 2 into eye; maxillary 2 into head. Scales 23. Teeth villiform in jaws, vomer and palatines. No canines. Bones of the head not serrated. Caudal rounded. Color in spirits: Yellowish brown, with darker spots over body. A black spot half as large as eye and margined with white on the opercle. One specimen. Length 2.25 inches. Guam, July 12, 1900. *Hab.* Red Sea, Seas of India to Malay Peninsula, Marianas.

96-98. *Apogon savayensis* Gunth.

Head 2.66 (without flap); depth 2.66; eye 2.55; snout 1.66 into eye; maxillary 1.66; mandible 1.50; D. VII, 19; A. 1 8. Scales 2-27-5. Body oblong, compressed. Preopercle with a double edge. Teeth villiform in jaws, vomer and palatines. Fins: Caudal slightly emarginate. Length of spinous dorsal 1.66 into head. Base of anal equal to eye. Pectorals slightly longer than the ventrals. Color in spirits: Olive, a dusky saddle over free portion of caudal peduncle. A dusky oblique line from lower posterior edge of orbit to lower posterior edge of opercle. There are slight indistinct indications of four other dusky bands descending from the dorsal fins to belly. Ventrals white. All the remaining fins more or less dusky. Seven specimens. Length 2-4.50 inches. Guam, June 14, 1900. *Hab.* Coasts of Africa, Seas of India, Marianas.

FAMILY SERRANIDÆ.—SEA BASSES.

GENUS EPINEPHELUS BLOCH.

99. *Epinephelus dæmetii* Gunth.

Head 2.66; depth 3.66; eye 4.66; width of maxillary at distal end 2.50 into eye; mandible 1.50 into head; interorbital 2 into eye; D. XI, 16; A. III, 8; V. 1 5; P. 17. Scales small, about 85 in lat-

eral line. Teeth in narrow bands in 2 series on the sides of the mandibles. Canines strong. Villiform teeth also on palatine bones and vomer. Branchiostegals 7. Pseudobranchiæ present. Maxillary reaching past vertical of posterior of eye, lower jaw projecting. Border of preopercle rounded and serrate, the serræ slightly larger at angle. Gill-rakers short, 13 on lower arm, with villiform teeth. Fins: Caudal rounded, its length about 2 into head. Soft anal slightly longer than soft dorsal. Third anal spine the longest, 2.50 into head. Fifth dorsal spine the longest, 2.66 into head. Pectorals rounded, 1.50 into head, their base about equal to orbit. Ventrals not reaching to anus. Color in spirits: Brownish, with mottlings and narrow lighter more or less hexagonal lines, white below, the body with about six indistinct slightly oblique bands about as wide as interspaces. The dorsal parts of these bands are very black and distinct, less distinct on sides; the first is on the shoulders, second from 2-5 dorsal spine, third from 7-10 dorsal spine, fourth from 2-6 dorsal ray, fifth from 12-14 dorsal, and the sixth forms a black saddle on caudal peduncle. All of these bands extend a little obliquely down to the ventral surface of body. The thorax has 9 round brown spots half as large as eye. The caudal is brown with small white spots and a narrow white margin. The pectorals a yellowish without distinct markings. Anterior of ventrals dusky, remainder of fin white with about 9 brown spots. Tip of anal black. The general coloring of both the anal and dorsal is brown with lighter lines reticulating through them. One specimen. Length 6.5 inches. Guam, July 12, 1900. This species is well figured in Boul. Cat. Fishes, 2 ed., p. 223, Pl. VII. *Hab.* Western Pacific, Marianas.

100-103. *Epinephelus hexagonatus* (Bl.). *Gadua*.

Head 2.66; depth 3.20; eye 5; distal width of maxillary reaches to below hind edge of orbit 2.50 into eye; mandible 1.50 into head; interorbital 1.33 into eye; D. XI 16; A. III 8; V. I 5; P. 16. Scales small ctenoid, about 108 in lateral line. Upper two-thirds of hind margin of preopercle finely serrated, lower third coarsely so. Hind margin of opercle with three spines equidistant apart, the middle one the largest, its length about 2 into orbit. Fins: The caudal is rounded, its length about 2 into head. Pectorals rounded, their length 1.66 into head, their base about equal to orbit. The soft dorsal and soft anal are about equal in length, 2.50 into head. Color in spirits: Brown, with light reticulations covering the body, giving the appearance of hexagonal, sometimes rounded, or more or less confluent spots. These spots not only cover the entire body but all the fins also. On the pectorals, however, the spots are smaller and more nearly in rows. Four specimens. Length 4-8 inches. Agaña, Guam, July 12, 1900. *Hab.* Western Pacific, Polynesia, Marianas.

FAMILY LUTIANIDÆ.—SNAPPERS.

GENUS LUTIANUS BLOCH.

104-106. *Lutianus fulvus* (Bl.). **Kakaka.**

Head with flap 2.60; depth 3; eye 3.66; interorbital less than eye; snout 3; D. x 14; A. III, 8. Scales 52, which are oblique above lateral line, horizontal below. Maxillary equal to length of snout. Interopercular knob well developed. The vertical limb of the preopercle with a deep emargination and a produced rounded angle; above the notch the limb is serrated. Branchiostegals 7. Pseudobranchiæ developed. Body oblong, compressed. Fins: Caudal fin emarginate. Length of pectorals equal to distance from posterior margin of opercle to anterior nostril. Base of anal about 4 into base of dorsal. Ventrals 1.66 into head. Color in spirits: Uniform yellowish, with slight wash of reddish. A dusky splotch in axis and on base of pectorals. The upper third of dorsal black, with a narrow white margin. Caudal more or less dusky, with a narrow white margin. An indistinct dusky mark near middle of anal. Pectorals and ventrals yellow. Three specimens. Length 6-8 inches. Guam, June, 1900. *Hab.* Andamans, Polynesia, Marianas.

107. *Lutianus bengalensis* (Block.).

Head 2.50, including opercle flap; depth 3; eye 4; interorbital 2.33 into snout; D. x 15; A. III 9; V. I 5; P. 15. Scales 64. Maxillary 2.66 into head. Vertical limb of the preopercle with a notch above its rounded angle. Interopercular knob distinct. Teeth villiform on vomer and palatines, small-sized canines in premaxillary with a row of small curved conical teeth in each jaw. Gillrakers of moderate size, 13 on lower limb. Fins: Caudal forked. Pectorals equal to distance from tip of opercular flap to hind nostril. Ventrals about 2 into head. Base of anal 3.86 into base of dorsal. Color in spirits: Yellowish white, a slight wash of bluish above. Four blue, brown-edged stripes, one-half as wide as pupil, along sides of body; first from interorbital to eighth dorsal spine, second from upper posterior margin of orbit to 4-6 dorsal ray, third from upper anterior margin of opercle on a line with middle of orbit to behind the last dorsal ray, fourth from sides of snout below orbit across opercles to middle of caudal fin. Fins: Yellowish white. Dorsal with dusky tip. One specimen. Length 7 inches. Guam, June 14, 1900. *Hab.* Red Sea, seas of India, Malay Archipelago, Marianas.

108. *Lutianus erythropterus* Bl.

Young: Head 2.50; depth 2.66; eye 3.20; interorbital 6 into head; snout equal to eye; maxillary reaches to below the pupil; D. x, 13; A. III 8. Scales 55. Body oblong, compressed, and slightly elevated. Color in spirits: Yellowish white, with a slight

wash of reddish brown. Fins: Yellowish white, the dorsal with a fine black margin. Twenty-seven small specimens. Length about 1 inch. Guam, June 1, 1900. *Hab.* Red Sea, coast of Africa, seas of India to Malay Archipelago, Marianas.

109-110. *Lutianus bonhamensis* Gunth. Mafuti.

Head 3; depth 3; eye 3.66; interorbital 3.18; snout 2; maxillary 2.50 into head, not reaching to orbit; mandible 2.20; D. x 9; A. III 8; P. 14; V. 1 5. Scales 6-48-15. Body oblong, compressed. Branchiostegals 6. Teeth villiform in anterior portion of jaws, with 4 canines in front of them; the teeth in hind part of jaws rounded molars, 8 on each side behind the canines, the 4 anterior of these rather sharply pointed. Fins: Caudal emarginate. Pectorals about the length of head. Ventrals reaching to anal opening, 1.50 into head. Base of anal 2.66 into base of dorsal, the third, fourth and fifth dorsal spines the longest—about one-third the depth of body. Color in spirits: Grayish, with a wash of olive; more or less indistinct dusky mottlings on back and sides; sometimes a large black splotch on middle of sides. Axis of pectorals bluish. Fins yellowish white. Two specimens. Length 8-10 inches. Guam, June 14, 1900. *Hab.* Marshall Islands, Marianas.

111. *Lutianus monostigma* (Cuv. & Val.). Buah.

Head 2.50; depth 2.50; eye 4; interorbital 5; snout about equal to eye; maxillary 2.33; D. x 13; A. III 8. Scales 50. Body oblong, somewhat compressed. Maxillary reaching to below hind third of eye. Color in spirits: Whitish, with a slight wash of reddish brown. A distinct black spot on the lateral line under the anterior soft dorsal ray. Fins yellowish white. Two specimens. Length 2 inches. Guam, May 26, 1900. *Hab.* Polynesia, Marianas.

FAMILY CIRRHITIDÆ.—CIRRHITOID-FISHES.

GENUS PARACIRRHITES STEINDACHNER.

112. *Paracirrhites arcatus* (Perkins).

Head 3; depth 2.50; eye 4; interorbital 2 into snout; D. x 11; A. III 6. Scales 5-42-10. Maxillary 2.30. Body oblong and compressed. Branchiostegals 6. Preopercle denticulate. Teeth villiform in both jaws, with a few small canines; villiform teeth on vomer. Fins: Seven simple rays in the pectorals. Caudal square. Anterior rays of soft dorsal elongate. Base of anal 3.25 into base of dorsal. Color in spirits: Reddish brown, a wide white line above the lateral line from below fifth dorsal spine to the upper half of caudal. A white, brown-edged semicircular ring obliquely behind eye. Three narrow oblique whitish lines on sub-opercle. One specimen. Length 4.5 inches. Guam, June 2, 1900. *Hab.* From Mauritius to Pacific, Marianas.

FAMILY **GARRIDÆ**.—MOJARRAS.GENUS **GARRES** CUVIER.**113. *Garres argyeus* Cuv. & Val.**

Head 3.33; depth 3; eye 3.50; mandible 2.20; interorbital 3; D. IX 10; A. III, 8; P. 16; V. 1 5. Scales 45. Body slightly elevated, oblong and compressed. Snout very protractile. Branchiostegals 6. Pseudobranchiæ well developed. The groove for the processes of the intermaxillary bones does not extend to the vertical from the centre of the eye. Teeth setiform, lower pharyngeal bones firmly united by a suture. Fins: Caudal well forked, scaled. Pectorals longer than head. The first dorsal spine is contained 1.50 into head. The dorsal fin has a scaly sheath into which the fin is received. Color in spirits: Uniform silvery, tip of dorsal dusky, a dusky line from dorsal to forehead, and an indistinct dusky blotch on tip of snout. One specimen. Length 15 inches. Guam, July 12, 1900. *Hab.* Red Sea, Australia, Marianas.

FAMILY **POMACENTRIDÆ**.—DEMOISELLES.GENUS **POMACENTRUS** LACÉPÈDE.**114. *Pomacentrus punctatus* Quoy & Gaim.**

Head 3; depth 1.66; eye 2.50; snout equal to eye; D. XII 15; A. II 13. Scales 24 in the lateral line, which terminates under posterior half of soft dorsal. Body short and compressed. Branchiostegals 5. Gill-rakers small, length less than pupil of eye. Teeth small setiform. Preopercle serrated. Fins: Caudal emarginate. Ventral fins somewhat produced, the longest ray greater than length of head. Length of pectorals slightly less than head. The soft anal slightly longer than soft dorsal. Color in spirits: White, with a slight wash of grayish brown. Each scale with a small blue dot, larger dots on sides of head, and a lighter wash on preorbitals. A black spot on base of posterior. Three soft dorsal rays and a black spot in axil of pectoral fins. All the fins yellowish white, a slight wash of dusky on ventrals and anal. Two specimens. Length 2 inches. Guam, July 1, 1900. *Hab.* Red Sea, Andamans, Malay Archipelago, Marianas.

115. *Pomacentrus trimaculatus* Cuv. & Val.

Head 3; depth 2; eye 3; snout slightly longer than diameter of eye, 2.66 into head; D. XII 15; A. II, 16; interorbital equal to eye. Scales 20 (with tubules). Body short and compressed. Sub-orbital and posterior edge of preopercle serrated. Teeth small. Fins: Ventrals with first rays rather elongate, equal to length of head. Pectorals 1.20 into head. Caudal emarginate. Color in spirits: Almost uniform greenish, a dusky splotch on posterior part

of dorsal fin, some bluish spots on opercles and cheeks. Two narrow blue lines go from one orbit to the other. A row of bluish dots more or less connected directly below the eye. A narrow blue line from front of orbit to snout. One specimen. Length 2.5 inches. Guam, June 1, 1900. *Hab.* Andamans to Malay Archipelago, Marianas.

116. *Pomacentrus littoralis* Kuhl.

Head 3.20; depth 2; eye 3.50; snout and interorbital equal to eye; D. XIII 14; A. II 14. Scales 19 in lateral line proper, which ends under middle of soft dorsal. Teeth in single row in both jaws. Sub-orbital and vertical limb of preopercle serrated. Body short and compressed, the chin and forehead equally convex. Greatest depth of preorbital about one-half diameter of eye. Fins: Caudal emarginate. Ventrals longer than head. Pectorals equal to head. Base of anal 2.20 times into base of dorsal, the longest soft dorsal rays about equal to longest soft anal rays. Color in spirits: Brownish olive, either uniform or with some indistinct darker spots. A black spot at base of pectorals. An indication of bluish markings on sides of head, *i. e.*, on sub-orbital. Five specimens. Length 2-4 inches. Guam, June 1, 1900. *Hab.* Andamans, Malay Archipelago, Australia, Marianas.

117. *Pomacentrus bankanensis* Bleek.

Head 3.50; depth 2; eye 3; snout and interorbital equal, and each slightly less than the eye; D. XIII 14; A. II 15. Scales 17 to where line terminates. Sub-orbital and preopercle serrated. Body short and compressed. Branchiostegals 5. Fins: Ventrals slightly longer than head. Pectorals equal to head. Base of anal 2 into base of dorsal. Caudal emarginate. Color in spirits: Brownish, each scale with a blue dot. Two narrow blue lines on forehead, converging on snout and extending on to back. A deep blue, almost black spot on upper opercle; another margined with bluish white on bases of the eleventh, twelfth and thirteenth soft dorsal rays. Pectorals and caudal yellowish white. Ventrals, anal and dorsal more or less dusky. Three specimens. Length 1.50-3.50 inches. Guam, June 2, 1900. *Hab.* Andamans, Malay Archipelago, Marianas.

GENUS AMPHIPRION BLOCH.

118. *Amphiprion ephippium* Bl. Gadudog.

Head 3.25; depth .75; eye 4 into head; profile rounded and blunt; D. X, 16; A. II, 14. Scales 7-40-18. Color: Brownish black, lighter anteriorly with a white band. Blue in life. One and one-half times as wide as eye, extending from the neck to eye, and down along the opercle and preopercle, ending in an acute angle

on the sub-opercle. Fins: Ventrals and anal black. Pectorals, caudal peduncle and fin yellow. The spinous dorsal is dusky, the soft dorsal is light yellow. The posterior of caudal and anal is rounded; the posterior of dorsal forms an acute angle. The interorbital space is about twice as wide as eye. The opercles are all distinctly toothed and ridged on their posterior parts. Four specimens, 3-4.50 inches in length, were secured inside the reef, Agaña, Guam, June 14, 1900. *Hab.* Sea of Amboyna, Polynesia, Marianas.

119. *Amphyprion bicinctus* Rüpp.

Head 3.50; depth 2; eye 3 into length of head and less than length of snout; D. X, 16; A. II, 14. Scales about 7-44-20. Color: Blackish brown, with two china-white cross bands—blue in life; the first is of equal width with eye and extends over the neck vertically down to lower edge of opercle, the other extends vertically down from the eighth-ninth dorsal spine to the anal opening. Anterior part of head, thorax and fins orange. Fins: Posterior of anal and dorsal fins form acute angles. The caudal is emarginate, the upper lobe produced. Pectorals long, reaching to second white band. Teeth: In single series, small, conical. Opercle and preorbital armed with teeth, those on the opercle and sub-opercle being almost as long as width of pupil. One specimen secured at Agaña, Guam, July 14, 1900. Length 3 inches. *Hab.* Red Sea, Polynesia, Marianas.

GENUS *ABUDEFDUF* FORSKÅL.

120. *Abudefduf septemfasciatus* Cuv. & Val.

Head 3.20; depth 1.86; eye 3.86; interorbital 2.50; D. XIII 12; A. II 11; V. I 5. Scales 3-22-11. Body oblong, compressed and elevated. Snout 2.50 into head. A small eyelid on upper anterior part of eye. Preoperculum not denticulate. Teeth fixed, compressed, in a single series. Fins: Vertical fins scaled. The caudal well forked, the upper lobe the longest. Length of longest dorsal ray 1.20 into head, length of longest dorsal spine 1.66 into head. Pectorals equal to length of ventrals, slightly longer than head. Anal rounded, the longest ray equal to longest ray of dorsal; the base is 2.66 times into base of dorsal. A small flat spine from posterior margin of opercle. Color in spirits: Ground color of silvery grayish, with seven brownish cross bands which are broader than the interspaces; first, rather indistinct from occiput to preoperculum; second, from nape and anterior base of dorsal to pectoral; third, fourth, fifth and sixth extend from the dorsal fin; the seventh from a band on the caudal peduncle directly behind the dorsal and anal fins. Fins dusky, except the pectorals which are whitish with a black spot on upper base. Upper part and sides of

snout blackish. One specimen. Length 6.50 inches. Guam, June 1, 1900. *Hab.* Mauritius to Philippine Islands, coast of China, Marianas.

121. *Abudefduf brownriggii* Benn.

Head 3.68; depth 3; eye 2.66; snout and interorbital space equal and less than eye; D. XIII 13; A. 11, 13. Scales 26. Inferior orbital and preopercles not serrated. Body compressed and rather short, the snout and chin quite short and rounded. Color in spirits: Bluish to yellowish brown, some with small blue dots, some specimens with one or two black spots on base of soft dorsal fin. One specimen has a lighter yellowish band around caudal peduncle, and a large yellow splotch on opercles. Some specimens have two bluish lines on forehead. Four specimens. Length 1-3.25 inches. Guam, June 1, 1900. *Hab.* Polynesia, Marianas.

122. *Abudefduf antjerius* Kuhl.

Head 3; depth 2.20; eye 3; snout and interorbital space equal, and less than eye; D. XIII 13; A. 11 13. Scales 26. The scales on top of head are continued forward to anterior margin of eye. Body short, compressed. Branchiostegals 5. Pseudobranchiæ present. The anterior profile is rather more short and stubby than in most species of this genus. Fins: Caudal slightly forked. Pectorals about equal to length of head. Base of anal 2.55 into base of dorsal. Color in spirits: Brownish, almost without markings, to bluish with two or three minute lighter dots on each scale. A black spot at the base of dorsal. One specimen is lighter on belly and thorax. A blue line along sub-orbital. A black spot in upper axis of pectorals. Caudal yellow. Pectorals yellowish white, remaining fins dusky. Two specimens. Length 2 inches. Guam, July 14, 1900. *Hab.* From Red Sea to India and Malay Archipelago, Marianas.

123. *Abudefduf lacrymatus* Quoy & Gaim.

Head 2.66; depth 2.05; eye 2.86; snout equal to interorbital and less than orbit; orbitals and preopercles not serrated; D. XII 14; A. 11 13. Scales 27. The tubules of lateral line ending under middle of soft dorsal, the line being continued by small circular pores. The preorbital above angle of mouth one-half diameter of eye. Body short and compressed. Branchiostigals 5. Pseudobranchiæ present. Teeth small, compressed, and in a single row. Fins: Ventrals equal to length of head. Caudal emarginate. Base of anal 3 into base of dorsal. Color in spirits: Brown, with small scattered blue spots, some specimens almost plain. Hind portion of soft dorsal and caudal yellowish white. Pectorals white with black at base. Anal and ventrals dusky. Seven specimens (young). Length 1-2 inches. Guam, July 23, 1900. *Hab.* Coast of Java, Ternate, Marianas.

124. *Abudefduf dickii* Lienard. Fomho.

Head 3.20; depth 1.66; eye 3; snout equal to eye; interorbital 2.66 into head; D. XII 15; A. II 14. Scales 30. Body short and compressed. Opercles entire. Teeth compressed and in a single row. The tubular portion of the lateral line stops below posterior end of soft dorsal fin. Fins: Caudal well forked. The anterior rays of dorsal and anal somewhat prolonged. Rays of ventral equal to or slightly longer than head. Vertical fins scaled. Color in spirits: Grayish brown, with a black band on posterior third of body, descending from third-seventh dorsal rays to middle of soft anal. Caudal and pectorals yellowish white, slightly dusky at tip, the remaining fins dusky. One specimen. Length 4 inches. Guam, June 14, 1900. *Hab.* Samoa, Caroline Islands, Marianas.

125. *Abudefduf amboinensis* (Bleeker).

Head 2.30; depth 2.33; eye 2.66; interorbital equal to orbit; maxillary 2.66; scales 2-27-7; D. XIII 9; A. II 10. Body oblong, compressed. Snout shorter than diameter of eye, each jaw with about 40 small teeth. Fins: Dorsal and anal fins with their middle rays longest. Caudal deeply forked with the lobes much produced. Pectorals and ventrals of about equal length, 1 into head. Color in spirits: Brownish violet, slightly lighter below. A deep brown spot at base and in axil of pectorals. All the fins more or less washed with bluish, except pectorals which are white. Six specimens. Length 3.50 inches. Guam, June 14, 1900. *Hab.* Amboyna, Marianas.

GENUS TETRADRACHMUM CANTOR.**126. *Tetradrachmum aruanum* Linn.**

Head 3.50; depth 1.75; eye 2.75 into length of head; snout slightly shorter than width of eye; D. XII 13; A. II 11. Scales 3-26-11. Color: Whitish with three broad black cross bands, the first ascending obliquely upwards and back from the chin through eye to base of spinous dorsal; the second covers the ventral fins and extends in a slightly curved course to the fifth-ninth dorsal spines; the third embraces the soft anal, extends ventrally upwards on to the soft dorsal. Caudal fin white. The interorbital space is white. This is a very abundant little fish about the coral reefs, and were easily caught by lifting the chunks of dead coral out of the water and holding it over a net, the fishes, which were hidden in the holes of the coral, dropping out into the net. One hundred and twenty-five specimens were secured. Length .50-2.50 inches. Guam, June, 1900. *Hab.* Eastern coast of Africa, seas of India, Polynesia and New Zealand, Marianas. Numerous at the Andamans, Nicobars and Burmah. Much rarer in western than in eastern India.

FAMILY **LABRIDÆ**.—URESSE-FISHES.GENUS **HARPE** LACÉPÈDE..**127-128. Harpe axillaris** (Benn.). **Higum.**

Head 3; depth 3; eye 4.66; interorbital 3.50; D. XII 10; A. III 12. Scales 4-32-12. Body oblong and compressed. Branchiostigals 6. Pseudobranchiæ present. Teeth: The four anterior canines conical and free, teeth on sides of jaws in single row, a posterior canine at angle of jaws. Fins: Caudal square. Pectorals and ventrals of about equal length, 1.50 into head. Base of anal 2.25 into base of dorsal. Color in spirits: Head and anterior third of body brown, posterior two-thirds yellowish white (salmon color in life). Caudal yellow. Spinous dorsal brown. Posterior half of soft dorsal and anal fins yellowish white. Ventrals more or less spotted with brown. A deep black spot on first three dorsal spines, another on upper part of first three dorsal rays. A bright black spot on base and in axil of pectoral fins. A big black spot on outer half of first five anal rays. Two specimens. Length 4-6.50 inches. Guam, June, 1900. *Hab.* Seas of India to New Hebrides, Marianas.

GENUS **ANAMPSÈS** CUVIER.**129. Anampses cœruleopunctatus** (Rupp.). **Tatalum.**

Head, from end of opercle flap to tip of snout, 3; depth 3; eye 6.50; interorbital 3.66; D. IX 12; A. III 12; P. 13; V. I 5. Scales 5-28-10. No scales on head. Body oblong, compressed. Branchiostegals 6. Teeth in jaws in one row, the two front ones being prominent, directed forward with compressed cutting edges. Lateral line continuous, bending down for three rows of scales under seventh dorsal ray. Fins: Caudal slightly rounded. Pectorals 1.50 into head. Ventrals 2. Base of anal about equal to head, 2 into base of dorsal. Color in spirits: Brownish, each scale with a round blue spot margined with black. Head unspotted, but with 8-10 blue lines, most of which radiate from the eye, three extend almost vertically down from the orbit. Base of pectorals black, pectorals yellow. Ventrals dusky, the first rays blue. Caudal dusky, with numerous blue spots. Dorsal and anal with two or three rows of spots or lines. One specimen. Length 8 inches. Agaña, Guam, June 14, 1900. *Hab.* Red Sea, east coast of Africa, Mauritius, seas of India, Polynesia, Marianas.

GENUS **CHEILINUS** LACÉPÈDE.**130. Cheilinus trilobatus** Lacép. **Gadu.**

Head 2.50; depth 2.66; eye 6.50; interorbital 4.50; D. IX 10; A. III 8; P. 11; V. I 5. Scales 2-22-5. Lateral line interrupted. Head scaled, two rows of scales on the cheeks, three scales in lower

row which overlap the lower limb of preopercle. Teeth in a single row, the two anterior teeth in each jaw enlarged canines; no canine tooth at angle of jaws. Lower pharyngeals \perp shaped, the teeth of the lower limb rounded and in two rows, the middle one the largest. Color in spirits: Greenish, head with whitish (red in life) red stripes and dots, three very distinct oblique lines running from eye down sides of snout. Each scale of body with whitish vertical lines (red in life). The body is indistinctly banded with about five very wide dusky bands, the most distinct ones covering about half of the caudal peduncle. Vertical fins green with whitish margins. Pectorals yellow, ventrals green. One specimen. Length 8 inches. Guam, June 2, 1900. *Hab.* East coast of Africa, China, New Hebrides, Marianas.

131. *Cheilinus fasciatus* (Bl.).

Young: Head 2.60; depth 2.50; eye 4.20; D. IX, 10; A. III 8; P. 11; V. 1 5. Scales 23. Lateral line interrupted. Two rows of scales on the cheeks, the lower row with three scales. Two anterior teeth enlarged, canines; no canine tooth at angle of jaws. Color in spirits: Green, with seven and one-half narrow yellowish cross bands, two incomplete ones on the nape. The third is from the 3-4 dorsal spines to posterior of ventrals; the fourth is from the sixth dorsal spine to mid-way between ventrals and anal; the fifth is from 8-9 dorsal spine to 1-3 anal spine; the sixth is from 3-4 dorsal ray to anal; the sixth and seventh are on the caudal peduncle, the seventh occupying the base of the caudal fin. The thorax and lower half of head and tip of snout are yellowish white (probably red in life). A short black line crosses the opercular flap and base of pectorals. One specimen. Length 3 inches. Agaña, Guam, June 2, 1900. *Hab.* Polynesia, Marianas.

132-134. *Cheilinus nigropinnatus* sp. nov.

Head 2.50; depth 2.55; eye 3.75; snout 3.50, about equal to interorbital; D. IX 10; A. III 8, the third anal spine the longest; V. 1 5; P. 11. Scales 2-22-6. Lateral line interrupted. Teeth in a single row in each jaw, the six anterior ones the largest, curved and projecting. Snout sharp-pointed, mouth protractile. Cheeks with 2 rows of very large scales which entirely cover the whole of preopercle. The scales all over the body are distinctly striated. The tubes of the lateral line are unbranched. Body oblong, slightly compressed. The upper profile from anterior base of dorsal to tip of the pointed snout almost straight and on an angle of 20° with axis of body, its length 2.50 into length of fish exclusive of caudal. Eight rows of scales in front of dorsal. Pharyngeal teeth \perp shaped with 2 rows of teeth on posterior limb. Fins: Origin of dorsal slightly posterior to origin of ventrals. Base of anal 2 into base of dorsal. Pectorals 2 into head. Ventrals 1.75 into head. Color in

spirits: Very light brown (dull red in life), the free portion of tail with a distinct band of yellowish half as wide as eye and margined with dusky around anterior part. Another yellowish band bordered more or less distinctly with dusky just back of eye over the nuchial region to lower edge of opercles. Ventral fins jet black and covering a dusky spot on belly. The three anterior dorsal and anal rays each have a large black spot margined with yellowish. More or less dusky on tip of spinous dorsal; otherwise fins yellowish white. Three specimens. Length 3 inches. Guam, May 25, 1900. *Hab.* Marianas. This species seems to be a connecting form between *Cheilinus* and *Pseudocheilinus*. It is doubtful if the latter genus is well founded. Type of species No. 134 B. P. B. M.

GENUS **CORIS** LACÉPÈDE.

135-136. *Coris pulcherrima* Gunth.

Head 3.55; depth 3.55; eye 6.50; interorbital 5.66; D. IX 12; A. III 12. Scales small, 84 in lateral line. Body oblong, compressed. Branchiostegals 6. Teeth in a single row, no posterior canine teeth. Lateral line continuous. Fins: Caudal rounded. Pectorals 1.50 into head. The first dorsal ray elongate. Base of anal much longer than head, 1.50 into base of dorsal. Color in spirits: Dark brown with wash of bluish, blue dots the size of pupil scattered over the body, becoming more numerous on posterior part of fish. A series of blue dots run from eye along the base of dorsal fin. Two broad reddish violet stripes (rather indistinct in specimens before me) on the sides of head, one from tip of snout through eye to flap of opercle, the other just below the orbit from gape to posterior edge of opercle on a line with base of pectorals. There is a dark violet line on the isthmus. The general color of head is a shade lighter with a yellowish wash. Lips yellow. Caudal and pectorals bright yellow. Dorsal and anal yellowish with 2 rows of blue dots and margined with blue. Ventrals yellowish with wash of bluish, the first rays of deep blue. Two specimens. Length 5-8 inches. Agaña, Guam, July 12, 1900. The material at hand will not warrant the writing of *C. pulcherrima* with *C. formosa*. *Hab.* Western Pacific, Polynesia, Hawaiian Islands, Marianas.

137. *Coris aygula* Lacép. Tatanung.

Head 3.20; depth 3.20; eye 8.25; interorbital 5; D. IX 12; A. III 12; P. 14; V. 1 5. Scales 19-65-5. Lateral line continuous. No scales on the head. Nape of neck with rather prominent hump. Body oblong, compressed. The upper lip is very broad, with folds. Teeth: The two anterior teeth are large, curved canines; no canine tooth at angle of jaws; pharyngeal teeth \perp shaped, with blunt round teeth in more than 2 rows on lower limb. Fins: Caudal sub-truncate. Pectorals 1.66 into head. Outer ray of ventrals

elongate, 1.30 into head. Base of anal 1.66 into base of dorsal. The 2 anterior dorsal spines somewhat elongate. Color in spirits: Blackish, fins seem to be almost uniform with color of body, except there is a wash of bluish green on the pectorals which are margined with yellow. The opercular flap is a very deep blue. One specimen. Length 13 inches. Guam, June 28, 1900. *Hab.* Mauritius, Red Sea, Australia, Marianas.

GENUS **HALICHOERES** RUPPELL.

138. Halichoeres hortulanus Lacép.

Head 3; depth 3; eye 6.50; interorbital 4.66; D. IX 11; A. II 10; P. 14. Scales 3-24-10. Lateral line continuous, but bent abruptly down on posterior part of body. No scales on head, the scales on thorax smaller than those on sides. Teeth: A single row in each jaw, the four anterior ones in each jaw curved canines; the two anterior ones the longest; a single canine at angle of jaws. The pharyngeal teeth are \perp shaped, with one or two big teeth in middle of lower limb slightly convex, 1.50 into head, same length as pectorals. Base of anal is contained 2.66 into base of dorsal. The first ventral rays prolonged 1.66 into head. Color in spirits: Posterior two-thirds of body a light brown slightly washed with yellowish. Each scale has a square black spot in centre; belly without spots. Head with bluish longitudinal bands, two on the forehead; another extends from shoulder to snout through the upper part of eye; the next is a short line from posterior edge of orbit to shoulder, two short lines on opercle, and the other extends from anterior edge of opercle to the under jaw. The anterior part of back has a series of round bluish spots. Two yellowish spots on the back, the first below 4-5 dorsal spine, the second below the 4-5 dorsal rays; the anterior of these spots is followed by a black splotch larger than the spot. Caudal, anal, ventral and pectoral white, with wash of yellowish. Dorsal fin with brown oblique lines enclosing round spots. Two specimens. Length 1-6 inches. Agaña, Guam, July 14, 1900. *Hab.* Africa to Polynesia, Marianas.

139. Halichoeres nebulosus (Cuv. & Val.).

Young: Head 3; depth 3.50; eye 4.20; interorbital 5; D. IX 11; A. III 11; P. 13; V. 1 5, the outer rays prolonged. Scales 2-29-9, no scales on head. Lateral line continuous. Scales on thorax smaller than on sides. Body oblong, compressed. Pharyngeal teeth \perp shaped, the two middle ones on lower limb the largest. Teeth of jaws in single row, the two anterior ones in each jaw the largest, sharp, conical, and projecting forward. A canine tooth at angle of jaws. Fins: Caudal square. Pectorals 1.66 into head, its base 5, its shortest ray 3 into head. Base of anal 1.83 into base of dorsal. Color in spirits: Upper part of body with light and dark

blotches and spots. Three or four indistinct short silvery bands on sides of belly covered by the pectorals. A bluish black spot just back of orbit. Opercular lobe dark violet preceded by a silvery spot. About 7 yellowish white spots on the back, along the base of the dorsal. Head with several reddish violet bands, the outer one extending from gape to the middle of opercle; the one just above it extends from maxillary through lower part of orbit, where it branches, one branch curving down along the posterior margin of the opercle but not forming a complete ring. There are about three yellowish cross bands on top of the head. Dorsal fin with a small black spot between its 1-2 spines and a larger black ocellus between the 2-3 soft rays, and blue-tipped with a yellowish white dark-edged band through the middle. Caudal yellowish. Ventrals and pectorals yellowish white. Three specimens. Length 3 inches. Guam, July 14, 1900. *Hab.* Red Sea, East Indies, Marianas.

140. *Halichoeres opercularis* Gunth.

Young: Head 3; depth 3.50; eye 4; interorbital 5; D. IX 11; A. III 10. Scales 2-29-9. Body oblong, compressed. Color in spirits: Scales of upper half of body have dark brown margins with lighter centres. A series of five or six whitish spots along base of dorsal. A silvery dark-edged band from gape to opercles. A violet spot behind orbit; another larger one edged with dark brown on the extremity of operculum. Lower half of body whitish, with two silvery lines on the sides of abdomen descending obliquely forward. A black spot on dorsal between 1-2 spines; a larger yellow-edged spot between 1-3 dorsal soft rays. Anal white with grayish spots at base. Caudal yellow, tipped with dusky. Two specimens. Length 2 inches. Guam, July 14, 1900. *Hab.* Fiji Islands, Amboyna, Marianas.

141. *Halichoeres leparensis* (Bleek.).

Young: Head 3.30; depth 4.20; eye 4; interorbital 4. Scales 26. Lateral line continuous, no scales on head. Body oblong, compressed. Color in spirits: Faded into almost uniform light olive gray. Dorsal fin with large black spot between 1-2 spines and 1-2 soft rays; also indication of 8-9 minute dark dots along base of dorsal and a small black spot at base of caudal; otherwise fins white. An indication of narrow vertical bands—a brownish white line from behind margin of orbit continued in lighter shade of color to caudal. One specimen, badly faded. Length 1.50 inches. Guam, July 14, 1900. *Hab.* East Indian Archipelago, Marianas.

142. *Halichoeres nigropunctatus* sp. nov.

Head 3.33; depth 3.33; eye 5; interorbital 4, equal to snout; D. IX 11; A. III 11; P. 12; V. 15. Scales 2-30-9. Lateral line continuous. No scales on head; scales on the thorax smaller than

those on the sides. Teeth: A single row, with the four anterior teeth in each jaw enlarged; projecting canines; a canine tooth at the angle of the jaws. The pharyngeal teeth \perp shaped, with one very large tooth in the middle of the cross, flanked on each side by two smaller ones, the anterior limb of the \perp with about 12 saw-tooth-like teeth. Body oblong, compressed. Fins: The caudal is square; length of its exposed rays on median line equal to longest ray of ventrals, 1.66 into head. Height of caudal peduncle 2 into head. Longest ray of pectorals 1.33 into head, the shortest ray 2.50, the base 4. Base of anal 1.66 into base of dorsal. The last ray of dorsal equal in length to last ray of anal, 2.50 into head. The spinous portion of dorsal fin not so high as soft portion. Color in spirits: Ground color pearl white with a slight wash of pinkish and yellow. The entire body and opercles covered with black spots, larger than the interspaces; in fact, the ground color, except on the back and belly appears as narrow yellowish white reticulations all over the body. These colors, being very sharply defined, give the fish a most striking calico-like appearance. On the back, for a space about two-thirds the width of eye on each side of the dorsal fin the ground color appears without black markings, which gives the appearance of a yellowish band from the snout along the back to caudal fin. This yellowish white of the back is marked by about 9 small indistinct silvery splotches on each side of the dorsal; the last three form short narrow silvery bands over the caudal peduncle; a small silvery line extends down on the snout from the forehead to lips; a pinkish dark-margined stripe half as wide as eye from anterior of orbit to maxillary; a silvery stripe of equal width below it from orbit to gape; below this is another pinkish dark-edged stripe from lower margin of orbit, forming a complete band under chin; a branch of this line encircling a silvery spot on the posterior part of each lower mandible. The remaining markings on sides of head are uniform with markings of the body. Caudal fin yellowish with five dark cross bands. Dorsal with short oblique line alternating with dark lines which fade out on upper part of fin. Anal with 12 round black spots edged with silvery white on its inner half; outer half whitish with faded darker spots; margin of fin blackish. Ventrals with a black spot at base, and two dark cross bands on the ray, the inner one wider and most distinct; outer third of fin yellow. Pectorals yellow. One specimen. Length 4.50 inches. Agaña, Guam, July 2, 1900. *Hab.* Marianas. Type is No. 142, B. P. B. M.

GENUS **JULIS** CUVIER & VALENCIENNES.

143-146. *Julis anertensis* (Günth.).

Head 3.50; depth 3.50; eye 5.50; interorbital 4; D. VIII 13; A. II 13. Scales 28. Body oblong, compressed. Snout not produced. Anterior teeth conical. Inferior pharyngeal teeth not con-

fluent or pavement-like. Branchiostegals 6. Fins: Caudal deeply lunate. Length, longest ray equal to head; the shortest ray 2.20 into head. Pectorals 1.25 into head. Ventrals 1.50. Base of anal about 1 into head, 2 into base of dorsal. Color: Head violet with about five oblique or longitudinal lines of greenish with darker edges; three of these lines centre in the orbit. Body greenish, the vertical streak on each scale very indistinct. Pectorals with a broad oblique black band across its posterior half, and with a black spot at the axis. A black spot between second and third dorsal spines; two fine brown lines run the entire length of the dorsal, one near the base, the other just above the middle of its height; they are the margins of a broad band of greenish along the middle of the fin. Anal with a similar line running a little above its middle, separating the bluish basal portion from the outer yellowish white. Caudal yellowish white with a yellowish band having fine brown edges along the upper and lower margins of the fin. Six specimens. Length 2.50-7 inches. Guam, July 14, 1900. *Hab.* North coast of Australia, New Hebrides, Norfolk Island, Marianas.

147. *Julis purpurea* (Forsk.).

Head 3.33; depth 3.33; eye 7.50; interorbital 4.33; D. VIII 13; A. II 11; V. I 5. Scales 27. Head entirely naked. Body oblong, slightly compressed. Snout not produced. Branchiostegals 6. Teeth in a single row, two anterior canines in each jaw, no posterior canine. Fins: The caudal is slightly emarginate, the upper and lower rays being slightly produced. Pectorals 1.50. Ventrals about 2. Base of anal equal to length of head, 1.66 into base of dorsal. Color in spirits: Grayish with a wash of green, two broad red bands (faded into whitish) from head to caudal fin; another brownish violet band along the back to the caudal fin, the red lines along the sides send up vertical processes joining each other. A broad red line extends from posterior part of orbit obliquely back, branching into two on the opercle. An orange line on lips and another across snout just above the lips. Top of head purplish. A yellowish line across upper boundary of interorbital. Dorsal fin with upper half pea-green, lower half whitish separated by a dusky line. A black spot between 1-3 spines. Anal with upper half yellowish white, the lower half greenish separated by a dusky line. Pectorals yellow with black tips. Caudal greenish. One specimen—length 8 inches, and 8 young, 2-5 inches. Agaña, Guam, July 14, 1900. *Hab.* Seas of India, Africa, Polynesia, Marianas.

148. *Julis punctatus* sp. nov.

Head 3.25; depth 4; eye 6; interorbital 4.25; D. VIII 13; A. III 10; P. 15; V. I 5. Scales 8-27-2. Head entirely naked. Scales on thorax smaller than on sides. Body oblong, slightly compressed. Teeth in single row, two large canines in each jaw,

no canine at angle of jaws. Fins: Caudal is slightly convex with the angles scarcely prolonged. Pectorals 1.50 into head, its base 4.50; the shortest ray is equal to base. Ventrals short, their longest ray 2.25 into head. Base of anal is contained 1.86 into base of dorsal. The last soft rays of anal and dorsal of equal length, 4 into head. Anterior dorsal spine 5.75. Color in spirits: Ground color whitish with wash of grayish olive. The scales of the back and down to lateral line on sides have dark brown centres. A black spot about size of eye forms a saddle on the caudal peduncle just back of the dorsal fin. The scales of the lateral line are without dark centres. On the sides of the body below the lateral line are two longitudinal rows of alternating dark and white (probably red in life) blotches of about equal size, there being six pairs of dark blotches on each side; these blotches are separated vertically by a row of scales without brown centres. Belly, thorax and chin without markings. Sides of head without definite lines, a yellow dark-edged band over snout. Top of head and upper part of snout with narrow bluish reticulations. Caudal clear yellow (base probably red in life). Dorsal yellow with a dusky blotch between 2-3 dorsal spine. Pectorals yellow with axil dusky. Ventrals yellow. The upper parts of opercles are brownish. One specimen. Length 7 inches. Agaña, Guam, July 14, 1900. *Hab.* Marianas.

GENUS **STETHOJULIS** GUNTHER.

149. Stethojulis renardi (Bleek.).

Head 2.83; depth 3.75; eye 6; interorbital 4.25; D. IX 11; A. II 11; P. 14. Scales 10-29-2; no scales on the head; the scales on the thorax as large or larger than those on the sides. Lateral line continuous. Body oblong, compressed. Fins: Base of pectorals slightly above the axis of body, their length 1.50 into head. Ventrals 2.60 into head. Base of anal 2.20 into base of dorsal. Caudal rounded. Color in spirits: Bluish above, white with slight wash of blue below. Body with four longitudinal stripes; the upper, very narrow and indistinct, extends from occiput along base of dorsal fin; the others are yellowish white—the second is from in front of nostrils through upper part of eye to caudal; there is a small black dot above its termination; the third extends from the maxillary, below the eye to a line with posterior edge of base of pectorals; the fourth, so far as can be distinguished, extends up from the isthmus along the gill openings to a little below base of pectorals, whence it curves backwards and ends on a line front of anal. One specimen. Length 4 inches. Agaña, Guam, July 14, 1900. *Hab.* East Indian Archipelago, Marianas.

150. Stethojulis fulvoventris sp. nov.

Head 3; depth 3.20; eye 4.75; interorbital 4.20; D. IX 11; A. III 11; P. 15; V. I 5. Scales 2-29-9. Lateral line continuous.

No scales on the head, the scales on the thorax larger than on the sides. Upper lip broad, lower lip double. The pharyngeal teeth \perp shaped, not pavement-like. Teeth in jaws in single series, the anterior ones (in young) not especially long, a canine tooth at angle of jaws. Body oblong, compressed. Branchiostegals 6. Fins: Caudal is rounded. Pectorals 1.50 into head, base 4.50, shortest ray equal to base. Base of anal 1.86 into base of dorsal. Ventrals 2.33 into head. Color in spirits: Above brownish with purplish wash, each scale with three or four small dots of bluish green, dots thicker and more minute on top of head and upper half of opercle. Sides of body below axis, belly, thorax and chin yellowish white with slight bluish wash; the centre of the scales a shade darker, which gives an indistinct streaked appearance. A yellowish white line, broadest anteriorly, extends from lips across cheeks, just touching lower margin of orbit, and back to caudal, becoming indistinct posteriorly. Just above this line, extending from head to caudal fin, is a narrow dusky line. Two small black dots on each side of caudal peduncle; these dots are margined with blue. Base and axes of pectorals blackish. A curved white line, wide as the pupil, extends from edge of opercle above and around the inside axis of the pectorals. Fins: All whitish, an indistinct indication of bluish dots on dorsal; no black spot on last dorsal ray. Four specimens. Length about 3.50 inches. Agaña, Guam, June 14, 1900. This species is near *S. strigiventer* (Benn.). *Hab.* Marianas. Type specimen 150 B. P. B. M.

GENUS **GOMPHOSUS** LACÉPÈDE.

151-154. *Gomphosus pectoralis* Quoy & Gaim.

Head 2.66; depth 4; eye 7.5; interorbital 6.50; D. VIII 13; A. II 11. Scales 2-29-11. Snout much produced. Body oblong, compressed. Teeth conical, no posterior canines. Fins: Caudal truncate, the outer rays not produced. Pectoral 2 into head, its base equal to length of its shortest ray. Base of anal 1.86 into base of dorsal. Color in spirits: Reddish brown on top of head and body, becoming lighter on belly and whitish on thorax and lower half of head. The scales of body darker at their bases. A dark band from snout through eye—in some specimens two bands may be distinguished behind the eye. A black spot at upper axis of pectorals. Caudal yellow for its posterior half. Dorsal and anal dusky, with a narrow margin of yellow, the anal with a row of transparent spots on its inner half. Pectorals and ventrals yellow. Five specimens. Length 3-5.50 inches. Guam, June 19, 1900. *Hab.* Mauritius to Malay Archipelago, Marianas.

155-156. *Gomphosus tricolor* Quoy & Gaim. Loro.

Head 2.50; depth 4.20; eye 10.5; interorbitals 7; distance from anterior of orbit to tip of snout 1.86 into head; D. VIII 13; A. II 11.

Scales 2-26-8. Body oblong, elevated, compressed. Snout very much produced. Anterior teeth conical, no posterior canines. Branchiostegals 6. Fins: Caudal with its outer rays rather produced. Pectorals 2 into head. Base of anal 2 into base of dorsal. Color in spirits: Deep bluish, a yellow splotch extending from lower part of pectoral axis to a little above a lateral line on the shoulders; this splotch is as wide as the orbit. Pectorals dusky with a deep blue band across posterior third. Dorsal and anal fins yellowish, without markings of any kind. The caudal is yellow, with the three outer rays on each margin bluish green. Ventrals greenish. Two specimens. Length 10 inches. Guam, June 14, 1900. *Hab.* East Indian seas, west part of Pacific, Marianas, Hawaiian Islands.

157. *Gomphosus pacificus* sp. nov.

Head 2.50; depth 4; eye 7.5; interorbital 6; D. VIII 13; A. III 11. Scales 2-27-9, the tubes of the lateral line much branched. Body oblong, compressed, the snout much produced. Teeth small, conical; no posterior canine teeth. Branchiostegals 6. Height of caudal peduncle 3 into head. Fins: Caudal truncate. Pectorals are half as long as head, their base 6 into head, and their shortest fin ray is one-half the length of the longest ray. The base of anal is contained 2.55 times into base of dorsal. Ventrals short, about 3 into head. Color in spirits: Head, including lower part, back, caudal peduncle and sides a sepia brown, the scales with a black spot at base. The thorax and belly is lighter, being a bistre, without the dark spot at base of scales. A narrow, indistinct whitish line half as wide as eye in axis of pectorals and extending two rows of scales above the base of the fin. The pectorals are brown, with a broad indistinct white band across their outer half, the base of the fin black. Ventrals yellowish white, with outer rays reddish brown. Posterior half of caudal yellowish. The inner half of dorsal and anal is dark greenish, while the outer half is yellowish white. One specimen. Length 6.20 inches. Guam, June 14, 1900. This species is probably more nearly related to *G. pectoralis* than any other described form, but it differs markedly in having the under chin sepia brown instead of white, in having a whitish band on the pectorals, in the different length of the base of anal fin into base of dorsal, and in having a whitish line behind the pectorals; also in the different markings of the dorsal and anal fins. *Hab.* Marianas. Type is No. 157 B. P. B. M.

GENUS CHEILIO LACÉPÈDE.

158. *Cheilio inermis* Bl.

Head 3; depth 7; eye 5.66; maxillary 4.20; mandible 2.59; interorbital 4 into length of snout; D. IX 14; A. III 12. Scales 50. Body elongated and nearly cylindrical, mouth more or less protracile. Teeth in a single row, the two anterior teeth in each jaw

the largest, no posterior canines. Fins: Caudal slightly rounded. Pectorals 2.20 into head. Base of anal 1.40 into base of dorsal. Ventrals small, 1.50 into snout. Color in spirits: Brown, with a slight wash of reddish; lower parts white, a dark line along sides from caudal to eye. Caudal brownish. Dorsal, pectorals and ventrals whitish. Anal whitish, with short oblique lines and dots of pale bluish. The margin of the fin is dusky. One specimen. Length 8 inches. Guam, June 2, 1900. *Hab.* Red Sea, seas of India, Polynesia, Marianas.

FAMILY **SCARIDÆ**.—PARROT-FISHES.

GENUS **SCARUS** FORSKÅL.

466. Scarus celebicus (Bl.).

Head 2.66; depth 3; eye 8.50; interorbital about 3; D. IX 11; A. II 8; V. I 5; P. 15. Scales 2-23-6. Body oblong, oval. Jaws large, very convex, the upper slightly projecting. Anterior teeth soldered together; a conical tooth at the angle of the upper jaw. Upper lip narrow, not covering half the upper jaw. Scales very large, cycloid; lateral line interrupted; two rows of scales on cheeks, no scales on lower limb of preopercle. Fins: The first dorsal spine is the shortest, its length about equal to diameter of eye. Caudal is almost square. Pectorals 1.50 into head. Ventrals smaller, about 2 into head. Base of anal equal to length of pectorals, about 2 into base of dorsal. Color in spirits: The teeth are a faded bluish green, with cutting edges white. The general color of the fish is a dusky greenish. A line, probably red in life, passes longitudinally through or behind the eye; these lines, and indeed all the distinctive colorings, are badly faded. The caudal peduncle seems to be lighter in color. The fins have faded so the markings are not distinguishable, although evidently made up of two colors, probably red and green. One specimen. Length 8 inches. Agaña, Guam, July, 1900. *Hab.* China Seas, Western Pacific, Marianas.

160. Scarus cypho sp. nov.

Head 3; depth 3.20; eye 6; interorbitals 3.50; D. IX 10; A. III 9; P. 14. Scales 2-24-6, lateral line interrupted, the tubes branched. Two rows of scales on the cheeks, with five scales in lower row; the opercular limb is entirely bare. Pharyngeal teeth pavement-like, about twice as long as wide, the anterior ones the longest. Teeth in jaws quite projecting, their length equal to orbit; two canine teeth at angles of upper jaw. Body oblong, compressed; the upper profile of back quite convex. The snout is much produced. The lips are rather narrow, scarcely covering one-half the jaws. Fins: The caudal is lunate. The pectorals 1.33 into head, their base 5, their shortest ray 4. Ventrals 1.50. Base of anal 1.50 into head, 2.83 into base of dorsal. The dorsal has 4 series of scales in front

of it and four behind it, its base is convex, its posterior rays are the longest, being about 3 into head. Color in spirits: A uniform light green, a darker blotch extending over top of head and upper part of opercles. Teeth greenish at base with white margins. Lips a brighter green with wash of yellowish, a narrow black line near their margins. Fins greenish, dorsal with narrow intermarginal line of black. Anal with broad edge of brighter green, a narrow black line through its outer third, inner two-thirds white with wash of green. Ventrals white with slight greenish wash. Caudal green, lighter in centre, with dusky intermarginal line. One specimen. Length 9.5 inches. Agaña, Guam, July 12, 1900. This species is characterized by the five scales in lower row on cheeks, its convex back, projecting snout, elongated dorsal fins, and rather narrow lips. Its coloring is similar, in spirits, to *P. bataviensis*, Bl. *Hab.* Marianas. Type is No. 160, B. P. B. M.

GENUS **PSEUDOSCARUS** BLEEKER.

161. *Pseudoscarus bataviensis* (Bl.).

Head 3.25; depth 3.25; eye 6.25; interorbital 3.20; D. 1X 10; A. III 9; P. 14. Scales 2-23-5. Two rows of scales on the cheeks, the lowest with six scales. The lips are broad, almost covering the upper teeth. A conical tooth at angle of jaws. The preopercular limb is entirely bare. Body oblong, compressed. The upper profile of back, from shoulders to middle of soft dorsal, straight. Snout short, blunt; length from anterior edge of orbit to tip of teeth 2.66 into head. Fins: Caudal is lunate, the outer rays being about one-third longer than middle ray. Pectoral ray 1.20 into head. Ventrals 1.50. Base of anal 1.50 into head, 2.50 into base of dorsal. Color in spirits: Greenish, more or less dusky on upper opercles and shoulders. Teeth whitish. Fins greenish, the caudal yellow in the middle, the tip black. Dorsal with dusky margin. Outer third of anal green, a black line through the middle, the inner two-thirds being greenish white. Ventrals with a wash of yellow. One specimen. Length 9 inches. Agaña, Guam, July 12, 1900. *Hab.* Batavia, Marianas.

162. *Pseudoscarus platodoni* sp. nov.

Head 2.66; depth 3.25; eye 6.50; interorbital 3.25; D. 1X 10; A. II 9; V. 1 5; P. 14. Scales 2-23-5, the lateral line interrupted. Two rows of scales on cheek, no scales on lower limb of opercle. Lips rather narrow, scarcely covering half the jaws. Body oblong, slightly compressed. Snout very blunt; from the interorbital to the posterior edge of upper teeth the profile is straight; the length of the upper front teeth being slightly greater than eye; no posterior canine tooth. There are 4 rows of scales in front of dorsal. The distance from anterior edge of orbit to tip of teeth is 2.50 into

head. Fins: The caudal is slightly rounded, its length 1.66 into head. The longest ray of pectoral is 1.50 into head, its base 4.50. Base of anal is 1.50 into head, 2.25 into base of dorsal. The ventrals are short, about 2 into head—about equal to longest dorsal spine. Color in spirits: Olive brown, the scales covered with slightly darker centres. All the fins, with the exception of the pectorals, are black. Pectorals yellowish white, teeth yellowish white, chin whitish, iris yellowish. The young are similarly colored. Two specimens. Length 3-6 inches. Agaña, Guam, July 14, 1900. This species is chiefly characterized by the very broad yellowish teeth, which give the snout a very blunt—almost square—tip; by the narrow lip, and the uniform coloring of the body. *Hab.* Marianas. Type No. 162 B. P. B. M.

163. *Pseudoscarus sumbawensis* Bl.

Head 3; depth 3; eye 5.50; interorbital 3.25; D. IX 10; A. II 9; V. I 5; P. 14. Scales 2-24-5. Body oblong, compressed. Upper jaw slightly the longer. A sharp canine tooth at angle of upper jaws. Two rows of scales on cheek. The lower preopercular limb is naked. Upper lip very broad, almost covering the upper teeth. The pharyngeal teeth pavement-like, their width 2 into their length. Lateral line is interrupted. Fins: Caudal is emarginate, with angles produced. Pectorals 1.25 into head. Ventrals 1.25. Base of anal 1.50 into head, 2.50 into base of dorsal. Color in spirits: Violet-olive. Dorsal, anal and caudal fins darker. Ventrals and pectorals yellowish. Two specimens. Length 3-7 inches. Guam, July, 1900. *Hab.* Marianas.

FAMILY CHÆTODONTIDÆ.—CORAL-FISHES.

GENUS CHÆTODON (ARTEDI) LINNÆUS.

164-168. *Chætodon ephippium* Cuv. & Val.

Head 3.88; depth 1.66; eye 3.50; interorbital 4; D. XIII 23; A. III 22; V. I 5. Scales 9-37-14. Body elevated and strongly compressed. The snout rather produced, the lower jaw longer. Lower edge of the preopercle slightly serrated. Branchiostegals 6. Teeth setiform. Fins: Dorsal spines are of moderate strength, the longest spine 2 into head. Posterior part of dorsal and anal rounded, the soft dorsal has a short projecting filament. Caudal square, the longest ray 1.50 into head. Color in spirits: Yellowish white with about 9 indistinct brownish longitudinal lines, half as wide as iris, below the axis. A big black patch broadly edged with white anteriorly occupies all the upper posterior part of the fish, including most of the dorsal fin. Posterior edge of the dorsal yellow, followed by a narrow black line and terminally tipped with white.

A short and narrow but perfectly distinct ocular band of black extends through the eye and to about the width of the eye above and below the orbit. A short vertical line extends up from the base of the pectorals just behind the posterior edge of the opercles. Another narrow black line beginning at the base of the fourth dorsal spine extends obliquely downward and forward to near the base of the pectorals. Ventrals, pectorals, anal and caudal fins white. Tip of snout yellow. Iris yellow, invaded by the black ocular band. Four specimens, 3-4 inches in length, were secured inside the coral reef, Agaña, Guam, July 14, 1900. *Hab.* Western Pacific, Polynesia, Marianas.

169-171. *Chaetodon satifer* Bl.

Head 3; depth 1.50; eye 3.50 into head; D. XIII 24; A. III 20. Scales rather large, about 35 in lateral line. Teeth setiform, the jaws rather projecting, the under one slightly the longer. A black ocular band, indistinct and narrow above the eyes; below it is distinct, slightly wider than eye and edged anteriorly with white. Color: Whitish; the posterior part, including caudal peduncle and fin, all of soft dorsal, and a broad edge to anal, a bright yellow. Body with about five darkish hypo-dermal bands passing backwards and upwards on the upper anterior third of body, and about ten passing downward and backward on posterior two-thirds of body. Top of dorsal behind the fifth ray with a round black white-edged spot. The soft dorsal is narrowly edged with black, and has a fine filament from upper posterior part. Soft anal and the caudal with a narrow submarginal line of black, the margin white. On the upper posterior third of the body two or three of the spaces between the black lines are colored yellow, which gives the appearance of there being three yellow lines angularly bent with the angle pointing forward on that part of the body. There are about five bright yellow lines on the forehead, between and above the eyes. The young specimen before me has the upper posterior third of body dusky; descending from the posterior part of this dusky patch is a rather indistinct blackish line extending into the soft anal fin where it forms an acute angle and extends forward. There is a very slight indication of this marking in the larger specimens. Three specimens, length 4-5 inches, were caught inside the reef. Guam, July 14, 1900. *Hab.* From the Red Sea through all the Indian Seas to Polynesia, Marianas.

172. *Chaetodon citrinellus* (Brouss.).

Head 3.50; depth 1.75; eye 3.13 into head; D. XIV 21; A. III 17. Scales 6-40-14. Color: Yellowish with round bluish spots in the skin under the translucent scales, these spots forming more or less distinct, slightly oblique lines from head to tail, less distinct posteriorly. A black ocular band edged with yellow from base of

spinous dorsal through eye to isthmus. Tip of snout black. Fins: Anal tipped with a black band, almost as wide as ocular band. This black band on anal is edged inwardly with a bright yellow band of about equal width. Pectorals, ventrals, caudal and dorsal white, the dorsal narrowly edged with dusky. The dorsal and anal forming an acute angle posteriorly. A series of four specimens were secured inside the coral reef, Agaña, Guam, July 9, 1900. These range in length from 3-3.75 inches. *Hab.* Polynesia, Molucca Sea, Marianas.

173. *Chætodon collaris* Bl.

Head 3.50; depth 1.20; eye 2.75 into head; snout obtuse, about equal in length to diameter of eye; preopercle slightly serrated; D. XII 26; A. III 21. Scales 5-45-22. Fins: The pectorals and spinous dorsal are white; the ventrals and anal are black; the caudal is white with two black lines and one yellow line near the end; the dorsal is grayish with a bright yellow line near edge of soft dorsal—this fin also has a minute subterminal line of black. The posterior part of dorsal and anal are sharply rounded, the general outline forming an acute angle. The caudal peduncle is black. Color in spirits: The general color is a blackish olive with irregular rows of longitudinal or oblique lines of yellowish round dots showing through each scale. This coloring extends from the black belly and anal fin up to the lateral line. In the specimen before me the lateral line is made very conspicuous by having five or six rows of the round yellow dots running parallel with it. It is very noticeable that these color dots are not so bright a yellow on the upper half as on the lower part of the body; the fading, however, is gradual. There is a broad black ocular band wider than the eye and edged with bright yellow, except on upper third; this black band extends to and embraces the ventrals. All the front part of head is black or dark brown, with a bright yellow line which forms the anterior border of ocular band, extending vertically down from the front edge of one orbit, under chin, to the other orbit. The interorbital space is slightly lighter brown and is indistinctly surrounded by pale yellowish lines, the upper one of which forms the upper anterior border of the black ocular band. From base of pectorals to base of ventrals and forward to ocular band there is a bright yellow area; above this and just back of ocular band there is a grayish area or band wider than the ocular band. This grayish color embraces all the dorsal fin and extends down to the lateral line. Variations: In the "Fische d. Sudsee" this species is figured as having the grayish coloring extending more than half-way down the sides with an abrupt whitish line (gray area in my specimen) between this color and the ocular band. In "Fishes of India" this species is figured with a narrow "bluish white" band just posterior of ocular band, and all the color dots run in a marked oblique

direction, and apparently there is no difference in the coloring on the sides of the fish. Day's figure also shows an additional yellow ring around the snout. Four specimens were secured. Length about 2-4 inches. Guam, July 14, 1900. *Hab.* Seas of India to the Malay Archipelago, Marianas.

174. *Chaetodon ornatissimus* (Solander).

Young: Head 3; depth 1.36; eye 2.50 into head; D. XII 24; A. III 23. Scales in lateral line 55. The snout is but slightly pointed and shorter than diameter of the eye. Fins: Ventrals and caudal yellow, the latter with black cross band in middle. Pectorals white, about equal in length to ventrals. Posterior edge of soft dorsal and anal yellow with black tips. Color: Yellowish white with seven dusky yellow oblique bands, about half as wide as orbit, extending backward and upward along sides of the body. A black band along the division of opercle and preopercle. A black ocular band, equal in width to iris, extends through the eye and around head; it is widest on forehead. Interorbital space black. A black line around snout and chin. Lower jaw black. Two specimens were secured inside the coral reef of Guam, June 9, 1900. Length 1.75 inches. *Hab.* From the Molucca Sea to Polynesia, Marianas.

175. *Chaetodon lunula* Lacép.

Head about 3; depth 1.50; eye 3.50 into head, 1.20 into snout; D. XII 24; A. III 18. Snout slightly produced. Teeth setiform. Fins: Yellowish, white in spirits. Scales in lateral line 42. Color: A black ocular band, broader than eye, crossing the interorbital space and extending to branchiostegals. Head behind this band is white. Snout and throat yellowish white, white in spirits. Bordering on the white band on back of head is a triangular black area extending back to base of fifth dorsal spine; three oblique yellow lines extend across this black area up and backwards towards the dorsal, the lower one forming the lower border of the black area. About the seventh dorsal spine a black line begins, which widens and extends along the base of soft dorsal, forming a band on caudal peduncle. This black band on caudal peduncle is bordered front and rear with yellow. The remaining surface of fish is yellowish, slightly dusky above, with about fourteen indistinct dusky, oblique, epidermal lines on the sides extending upward and back. Caudal fin almost square, broadly white-tipped, with a fine sub-terminal curved line of black. In specimens preserved in spirits the yellow coloring all fades into white. Variations: The young have a black spot with white rim on the soft dorsal. In "Fishes d. Sudsee" this species is figured as having the ocular band extending down to the margin of the preopercle. It is so described by Day in "Fishes of India". Thus differing from the Guam specimens which have the ocular band extending to the branchiostegals. The Guam

form also has more dusky on the upper part of body. Two specimens, length about 2.50 inches, were secured inside the coral reef near Agaña, Guam, July, 1900. *Hab.* Seas of India, Andaman Island to Malay Archipelago, Polynesia, Marianas.

176. *Chætodon fulcula* Bloch.

Head 3; depth about 1.50; eye 3.75 into length of head; D. XII 26; A. III 23. Snout rather produced, longer than diameter of eye. Scales 6-29-16. The black ocular band beginning at a distance equal to the length of the first dorsal spine anterior of the base of dorsal fin, and extending through the eye to isthmus, the lower part broadest. Teeth setiform. Fins: Posterior of dorsal and anal rounded. Dorsal spines stout and slightly curved; the median ones are longest. Caudal square, pectorals and ventrals are about equal length. Color whitish with two dusky bands about as wide as the length of caudal fin. These black bands extend from the dorsal to half-way down the sides of the fish, where they end indistinctly; the first from 1-5 spinous dorsal, the second from 8-12 spinous dorsal. Posterior of this last black line the color is a bright yellow, including all the soft dorsal, caudal and anal. The caudal peduncle has a round black spot near the middle. The caudal has a narrow black intermarginal band of white; the soft anal has two. There are about 19 subcutaneous, narrow, blackish, oblique lines passing down the body. Variations: This species is undoubtedly subject to a large amount of variation. In Garrett's "Fishes of the Sudsee" the two dark vertical bands from the dorsal are conjoined superiorly and extend so far as the fourth dorsal spine, and end sharply on about the middle of the sides, *i. e.*, on a line with snout and middle of caudal peduncle. And the body bands sometimes have white edges. In Day's "Fishes of India" these black bands are less wide and extend only to about the lateral line, while the caudal peduncle has a complete black band. Only one specimen was secured. Length 4.50 inches. Coral reef, Guam, May 29, 1900. *Hab.* Sea of Batoe, Seas of India to Malay Archipelago, Marianas.

177. *Chætodon strigangulus* (Solander). **Sea Butterfly.**

Head 3.20; depth 1.75; eye 3 into length of head; D. XIV 15; A. III 18. Scales 26 in the lateral line. Fins: Pectorals, ventrals, anal and dorsal white; the latter two tinged with yellowish and tipped with black. Caudal black, tipped with white, through which runs a fine black line. Mouth small, teeth minute. Color: Body whitish with about twenty-five black stripes angularly bent, with the angle pointing forward. A black ocular band, edged with white, not quite so broad as eye. One specimen, 4.50 inches in length, was secured inside the reef. Guam, July 14, 1900. *Hab.* From the Red Sea to Polynesia, Marianas.

178. *Chaetodon trifasciatis* Quoy & Gaim.

Head 3; depth 1.75; eye 3.50, 1 into snout; interorbital 2.75; D. XIV 17; A. IV 16; V. I 5. Scales 9-37-14. Body moderately elevated and strongly compressed. The snout rather sharp-pointed. Lower edge of preopercle serrated. Branchiostegals 6. Teeth setiform. The dorsal spines are of moderate strength, the longest spine 1.75 into head. Pectorals and ventrals of about equal length, 1.60 into head. Color in spirits: Yellowish white, with about 15 rather indistinct oblique dusky lines, angularly bent, with the angle directed forward. The black ocular band edged with white of about the same width as eye, extends from the neck to chest, forming a complete ring. A black band, slightly wider than eye, covers all the soft dorsal and extends down to posterior part of soft anal; this band is anteriorly margined with white. The fins are white, the caudal with a wash of yellow, a narrow black line near the middle. Only one specimen, 2 inches in length, was taken. Guam, July 14, 1900. This species is well figured in Freycinet, "Voy. Uranie," Zool., Pl. 62, Fig. 6. *Hab.* Polynesia, Marianas.

GENUS **HENIOCHUS** CUVIER & VALENCIENNES.**179-180. *Heniochus chrysostoma* (Solander).**

Head 3; depth 1.40; D. XII 23; A. II 18; eye 2.75. Scales small, about 67 in the curved lateral line. Fins: Dorsal with fourth spine elongated into a filament almost as long as depth of fish. Pectorals white, reaching to middle of black band on body. Ventrals black, reaching to base of anal. Caudal square, white with dusky spot at base. Soft dorsal white, soft anal mostly black. The snout is short and sharp-pointed, mouth small, teeth villiform in jaws. Color: Yellowish white, with three broad oblique bands of black. The first black band extends from the front of orbit and near first dorsal spine, obliquely down to base of ventral fins and near to anus; the second black band extends from the 3-7 dorsal spines to third and the last soft rays of anal; the third black band extends from about the ninth dorsal spine along the base of soft dorsal to the base of caudal. Snout dusky. Length 3.50 inches. Several specimens were taken inside the coral reef, near Agaña, Guam, July, 1900. *Hab.* Indian Archipelago, Polynesia, Marianas.

FAMILY **ZANCLIDÆ**.—MOORISH IDOLS.GENUS **ZANCLUS** CUVIER & VALENCIENNES.**181-188. *Zanclus canescens* (Linn.). Ababang.
Butterfly-fish.**

Head 2.45; depth about the same as length; eye 2.50 into snout; D. VII 37; A. III 35. A frontal horn above each orbit in adult specimens. Snout produced, teeth slender and brush-like, much

projected. The anterior rays of dorsal and anal elongated. First and second dorsal spines very short; the third greatly produced, ending in a filament about as long as the fish. Pectorals about equal in length to the ventrals. Caudal peduncle unarmed. Fins: Caudal lunate. Pectorals about equal to length of snout. Ventrals (including filament) about the same length as anal. Colors: Yellowish white with three broad, dark, vertical bands, the anterior one forming a somewhat oblique line with anterior of orbit to second dorsal spine, and extending to midway between pectorals and anal; the second extends from the bases of 5-25 anal rays to about 8-23 dorsal rays; this dark band broadens out on the anal fin, while on the dorsal it contracts to a point; there is also a narrow line of white in the posterior part of this dark band; the third dark band includes the base of caudal peduncle and about all of caudal fin. The anterior one of these broad black bands is traversed by two more or less distinct narrow blue lines; in larger specimens these are almost obsolete, excepting the line which extends from anterior base of pectorals to the gill openings. A dusky stripe extends from the \wedge shaped narrow blue line above and on a line with the middle of orbit to the tip of the snout; half-way between orbit and tip of snout a black line branches off on each side from this dusky frontal band, and unites with two other dark lines given off near the premaxillary, to form a right-angle triangle on each side of the snout. Lower jaw mostly black. Eight specimens, from 2.75-5.25 inches in length, were secured inside the coral reef. Agaña, Guam, July 15, 1900. *Hab.* This is a common and wide-ranging form extending from East Indies and Polynesian islands to Revillagigedo Archipelago on the east to western Pacific, Marianas.

190. *Holacanthus cyanotis* Günth. *Ugupa Amrilla.*

Head, exclusive of flap, 4; depth 1.86; eye 3.50; the preopercle spine smooth, slightly curved, reaching to base of pectorals, 2 into head; interorbital equal to eye; snout 2 into head; D. XIV 15; A. III 16; V. I 5. Scales 48. Preopercle serrated, the strong spine at its lower angle directed back. Teeth setiform. Branchiostegals 6. Scales small, and mixed with these are many minute ones. Body elevated and strongly compressed. Fins: Caudal rounded. The spinous dorsal commences above the opercles. The pectorals and ventrals each equal to length of head. Soft dorsal and anal sub-angular posteriorly. Color in life: Yellow; a fine blue ring around the eye and across interorbital; a blue line, as wide as pupil, down the posterior edge of opercle. Fins yellow; dorsal, caudal and anal with a fine marginal line of deep bluish black. In spirits the color fades into a uniform yellowish white with a blue line around eye and down posterior margin of opercle; caudal, soft dorsal and anal with a fine marginal line of black. Two specimens. Length 5 inches. Guam, June 14, 1900. *Hab.* Polynesia, Marianas.

GENUS **HOLACANTHUS** LACÉPÈDE.**191. Holacanthus imperator** (Block.).

Head 4; depth 1.75; eye 3.36, about equal to width of interorbital space; D. XIV 20; A. III 19. Preopercle serrated and armed with a spine which in adults is almost a third longer than width of opercle. Teeth setiform in closely set rows. Fins: The dorsal spines short, the longest about equal in length to the base of pectorals. Posterior of anal, dorsal and caudal rounded. All the fins black, except the caudal which is yellowish. The vertical edge of dorsal is also tipped with yellowish. The anal is edged with a narrow line of blue, and a blue line runs out on the spine of the ventrals. Color dusky blue, with about 14 yellowish lines passing obliquely upward to the dorsal, or horizontally to the caudal, or the anal; these stripes are about one-fourth as wide as the interorbital space, and the ones passing to the dorsal are most oblique. A large black descending band, with a blue anterior edge, on the shoulder. Another black band of almost equal width, and edged all around with blue, occupies the interorbital space, passes over eyes and comes to a sharp point on the preopercle just above the spine. The opercle is yellowish brown with the above mentioned blue lines bordering it fore and aft. Length about 6 inches. Specimens were secured inside the coral reef near Agaña, Guam, June 14, 1900. *Hab.* East coast of Africa, through seas of India to Malay Archipelago, Marianas.

192. Holacanthus marianus sp. nov.

Head 3.50; depth 1.50; eye 2.75; maxillary 3.50; interorbital 3.20; D. XIV 20; A. III 19; V. 15. Scales very small, feeling velvety to the touch. Body elevated and compressed. Head with moderately rounded profile, the snout but slightly projecting. Teeth setiform. Branchiostegals 6. Pseudobranchiæ well developed. Preopercle serrated, with a spine on lower part equal in length to the width of the opercle; this spine contained 3.50 times into head. Fins: Dorsal spines of moderate strength, the longest spine 2 into head. Posterior of dorsal and anal rounded. Caudal 1.16 into head, its posterior margin rounded. Pectorals the same length as head, the width of base 3. Ventrals with second ray produced into a short filament. Color in spirits: Bluish black, with about 13 more or less complete yellowish lines; the anterior of these lines, beginning at the base of the eighth dorsal spine, curves forward forming a margin of the jet black area of shoulders and then curves back to the anal opening; the remaining yellow lines above the axis are almost horizontal; the lines below the axis are very oblique, extending downward and back. Three of the lines on the axis are incomplete, being shorter than the head. There is a black area, the width of the eye, on the shoulders forming a line

slightly above the eye to the pectoral fins; this area is bounded anteriorly by a blue line which extends down the middle and lower edge of the opercle. A black area, margined with blue lines across the forehead and over eyes like a mask; this black area, however, does not extend down on preopercles, as in *H. imperator*, but the blue borders unite directly behind the eye and send a vertical blue line down to the base of the opercular spine. Four narrow oblique blue lines on the thorax, and also a short blue cross line just back of isthmus. Anterior of these are blue lines running from near the base of opercular spine to the tip of the first ventral ray. A blue line over the nape midway between first dorsal spine and black area of forehead. Spinous dorsal and anal yellowish white; soft dorsal blackish, the yellowish body lines forming a few reticulations in the posterior part of the fin. Pectorals, ventrals and anal blackish, the anal narrowly margined with blue, and with about three blue lines running through it, forming reticulations in posterior part. This species is closely related to *H. imperator* (Bloch.), but differs markedly from specimens of that species before me in the shorter head and shorter preopercular spine, and the almost entirely different markings of the body. One specimen. Length 4.50 inches. This species was taken inside the coral reef, Agaña, Guam, July 14, 1900. Type specimen is No. 193 in the B. P. B. M. *Hab.* Marianas.

193. *Holacanthus nicobariensis* Bl.

Head 3.50; depth 1.50; D. XIV 20; A. III 19; eye 3.5 into head, same as width of interorbital space. Preopercle serrated and armed with a spine which is equal in length to the width of the operculum. Teeth brush-like, much produced. Snout concave. Fins: The posterior part of dorsal, anal and the caudal rounded; dorsal continuous. Pectorals 1.16 into length of head, their bases black crossed by one crooked blue line. Ventrals 15, the first ray produced into a short filament. Color: Black with curved, concentric alternating white and blue lines; four of these white lines are especially wide and distinct, *i. e.*, one running obliquely forward just posterior to the eye—this touches the base of the preopercle spine and runs out on the spines of the ventrals. The second crosses the vent, curves up along sides of body, runs along the base of the dorsal and ends in reticulations on the posterior part of this fin. The third strongly marked white line extends in a deep crescent from posterior base of dorsal to posterior base of anal fin. The fourth and broadest line forms a complete circle around a short straight white line just anterior of caudal peduncle. In addition to these heavy white lines there is a lighter white line midway between each of them, and on each side of these narrow white lines and midway between them and the heavy white lines, are narrow concentric lines of blue. So, for example, beginning with the heavy white line which crosses the vent, we have first the

heavy white line; second, a narrow blue line; third, the light white line; fourth, a narrow blue line; and fifth, the heavy white line again. This is the uniform pattern of the fish; however, the blue lines may be more or less irregular, and between the two posterior heavy white lines they are incomplete, the last one being represented merely by three blue dots. There is a white cross band on the forehead with a narrow blue line above it. A white spot between nostrils. A bluish line running vertically down the cheeks makes an acute angle in front of eye and extends down the snout. A short blue line from gape to branchiostegals. Reticulations of bluish white on posterior part of dorsal and anal. Caudal dusky, with two white bands at base, and two irregular white bands on caudal peduncle. Length 4.50 inches. Specimens taken agree perfectly with Garrett's figure, "Fisches d. Sudsee," p. 41. *Hab.* Seas of India to Malay Archipelago and beyond, Red Sea, east coast of Africa, Marianas. My specimens were secured among the coral reefs of Guam, May 25, 1900.

194. *Holacanthus bishopi*⁵ sp. nov.

Head 3.66 : depth 1.66 : eye 2.50, 1 into snout ; interorbital 3 into head ; D. XIV 19 ; A. III 21 ; V. I 5. Scales minute and feel like velvet to the hand. Body elevated, strongly compressed; the snout not produced. Hind margin of preopercle finely serrated, the spine equal in length to diameter of eye. Branchiostegals 6. Pseudobranchiæ present, teeth setiform. Fins: Dorsal spines rather short, the first spine 3.66 into head, the second about as long again. The pectorals are the same length as head, their bases 2.50 into head and equal to preopercular spine; the first ray of pectoral prolonged into a small filament, length 3 into total length of fish. The hind margin of dorsal, caudal and anal rounded. Color in spirits: Black with about 8 concentric bluish white lines, alternately rather wide and very narrow as follows: First, as wide as pupil, forms a circle around snout and anterior edge of preopercle; second, encircles nape, passes just in front of preopercle spine, extends obliquely back on thorax and out on the first ray of ventrals; third, a narrow stripe forms a circle just in front of dorsal spine, crosses base of pectorals and around the belly just back of the ventrals; fourth, a wide line forms reticulations on soft dorsal, curves forward to almost a line with pectorals and then encircles belly at the vent; fifth, a narrow line extends from soft dorsal, forms a half-circle and ends in reticulations on posterior of anal fin; sixth, a wide line extends as a circle from posterior edge of dorsal to posterior edge of anal; seventh, a narrow incomplete half-circle; eighth, a wide line forms a complete circle just in front of caudal peduncle. In addition to these markings there is a narrow blue line extending perpendicularly down from front of eye to edge of opercle; another

⁵ Named in honor of Charles R. Bishop, founder of the Bernice Pauahi Bishop Museum.

across the interorbital space, and another between the nostrils. A simple reticulation of blue lines on the base of caudal fin. The fins are all dark, the caudal with a slight wash of yellowish. This species differs from the *H. nicobarensis*, Bl., before me in its shorter head, longer spine, larger eye, and additional soft dorsal ray, one less anal ray, and the markedly different arrangement and number of the body markings. Length of specimen 3.50 inches. Agaña, Guam, July 14, 1900. Type specimen is No. 194, B. P. B. M. *Hab.* Marianas.

FAMILY TEUTHIDIDÆ.—SURGEON-FISHES.

GENUS TEUTHIS LINNÆUS.

195. *Teuthis olivaceus* Bl.

Head 3.50, the profile rounded—the snout, however, is straight; depth 2; eye 3.20 into head; D. IX 24; A. III 22; V. I 5. Scales minute, ctenoid, about 20 between lateral line and dorsal. Teeth: Sixteen broad flat teeth in the upper jaw, dentate at extremity; about 14 in lower. Color: Dark brown; extending longitudinally backwards from the upper articulation of the opercle is a bright cadmium orange line (bluish in spirits), about equal in length to the snout, and half as wide as the interorbital space. This blue line is surrounded by a black zone of about the same width. There is a blue splotch just posterior to base of pectoral fins; this splotch is completely hidden by the pectorals when they are pressed against the sides of the body. The general color of fins is brown. The pectorals are broadly edged posteriorly with bluish white. The ventrals have a trace of blue. The caudal fin is deeply lunate, the upper lobe the longer; color entirely black, except the soft rays of the middle, which have a broad subterminal band of white, with a narrow terminal line of black. Caudal peduncle entirely brown, with one movable spine which is equal in length to the width of the eye. The pectoral fin is equal in length to the head. The ventrals are considerably shorter. The posterior edge of dorsal and anal form acute angles. One specimen, length 6 inches, was secured inside the coral reef, Agaña, Guam, July 15, 1900. *Hab.* Polynesia, Marianas.

196. *Teuthis mata* Cuv. & Val.

Head 3.50; depth 1.88; eye 3.50, 2 into snout; interorbital 3 into head; D. IX 26; A. III 25; V. I 5; P. 16. Scales minute. The spine on side of caudal peduncle short, about equal to one-half the width of orbit; it is less than one-half the depth of the caudal peduncle. Body compressed, elevated. The snout is straight; the mouth is small, with about 9-10 elobate teeth on each side of either jaw. Fins: The caudal is emarginate—the upper lobe the longer—the outer rays somewhat prolonged, 2.50 in length. The

pectorals are equal to length of head. The ventrals are shorter, 1.33 into head. Posterior margins of anal and dorsal form acute angles. Color in spirits: Uniform dark brown; fins all black, except posterior two-thirds of pectoral which is yellowish white. Iris yellow with inner ring of black. In the young the pectorals are colorless. Five specimens, 2-7 inches in length, were taken inside the reef at Agaña, Guam, June 9, 1900. *Hab.* Western Pacific, Polynesia, Marianas.

197. *Teuthis triostegus* (Linn.).

Head 3.66; depth 2; eye 3.66; interorbital 3; D. IX 22; A. III 19; V. 1 5; P. 15. Scales minute. Body ovate, compressed. Anterior profile curved, most convex over eye. Mouth small with about seven wide lobate incisors on each side. Fins: Dorsal with anterior spines more or less concealed in the skin. Caudal emarginate, the upper lobe slightly the longer. Color in spirits: Yellowish white with a wash of green, under surface white. Vertical fins dusky, pectorals white with yellow wash. Anal has a narrow margin of white. Body with five black vertical bands about as wide as pupil; first, from top of head through eye to branchiostegals; second, from base of first dorsal spine to base of pectorals where it branches, one branch going obliquely forward and down towards the isthmus, the other branch obliquely back and down to about ventrals; third, band from sixth dorsal spine to belly between anus and anal fin; fourth, from first dorsal ray to first anal ray; fifth, from seventh dorsal ray to fifth anal ray. A short black line over top of caudal peduncle, and a black dot on each side below. There is also a black line down the middle of snout. Eight specimens. Length 2-6 inches. Guam, May 26, 1900. *Hab.* Polynesia, Marianas.

198-204. *Teuthis lineatus* Bl. *Hijug.*

Head 4; depth 2; eye 3-3.50 into head; profile rounded, the snout, however, below the nostrils, is almost straight; D. IX 28; A. III 27; P. 17. Scales: About 8 rows between the lateral line and the base of the dorsal. Ground color of the sides and back canary yellow, with seven slightly oblique lines, blue in middle with dark on each side; these lines extend back to root of caudal fin. Lower part of body and belly grayish. A blue line passes down the middle of the forehead to the maxillary where it divides and forms a ring around the mouth; two other blue lines extend down on each side of this mid-line of the forehead; two or more blue lines begin on each side, just in front of the orbit, and curve down the sides of the snout to opercles. Other blue lines pass up and back from the hind edge of orbit to the lines of the body. Teeth flat, with dentate edges, 12 in each jaw. Fins: Ventrals with the longer outer ray blue, inner ones yellowish. Pectorals bluish.

Dorsal, anal and caudal dark, the dorsal with three or more blue lines running through it and terminating at the acute posterior angle of the fin. The anal has a narrow subterminal line of black, while tip of fin is bluish—the posterior part forms an acute angle. Caudal fin deeply lunate, the upper lobe the longer. There is a semi-lunar blue band about the middle of the caudal. Caudal peduncle strong, and armed with one white movable spine, considerably longer than the width of the eye. Variations: In spirits the bright canary yellow ground color fades into a dirty white. Guam specimens show a considerable variation in the arrangement of the blue lines about the base of caudal fin. They also fail to show the concentric arrangement of the blue lines in the dorsal fins as figured in "Fisches d. Sudsee," Vol. I., Haft IV. Seven specimens, length 4-11 inches, were taken inside the reef, Agaña, Guam, July 9, 1900. *Hab.* Polynesia, Marianas.

205. *Teuthis aliala* Linn.

Head 3.66; depth 1.50; eye 3.50; interorbital 3; D. IX 29; A. III 27; V. I 5; P. 16. Scales minute. Body elevated and compressed. Snout slightly concave; jaws with 5 elobate teeth on each side. Caudal peduncle about equal in height to length of its spine. Branchiostegals 5. Pseudobranchiæ developed. Fins: Caudal lunate, its longest ray 3.50 into length of fish. Pectorals equal to length of head; the ventrals are about one-third shorter. The posterior margins of the dorsal and anal are rounded. Color in spirits: Blue-black, a sub-crescentic area of Indian red just below the eye. A white ring around mouth. A line of yellowish white along the bases of anal and dorsal; posteriorly these lines broaden out and occupy about a third of the fins. Caudal is yellowish white with a white band and a black posterior margin. Spine on free portion of tail yellow. Pectorals and ventrals black. Dorsal and anal black, excepting the yellowish white marking mentioned above. Twelve specimens, one 7 inches in length, the others (very young) 1-2 inches in length. Agaña, Guam, July 14, 1900. *Hab.* Western Pacific, Polynesia, Marianas.

GENUS *CTENOCHÆTUS* SWAINSON.

206. *Ctenochætus strigosus* Bennett.

Head 4; depth 2; eye 3.50 into head; D. VIII 30; A. III 27; V. I 5. Scales small, about 19 between lateral line and the base of the last dorsal spine. Teeth setiform, movable with their outer end dilated and bent in and notched; 42 in upper row, 46 in lower. Color in spirits: Brown, faint traces of slight blue lines under the pectoral fins. Fins all black, except pectorals which are slightly yellowish blue. Caudal deeply lunate. The posterior parts of dorsal and anal not rounded, but forming very acute angles. Caudal peduncle stout and armed with movable black spine 1.30 times as

long as width of eye. Probably *A. ctenodon*, Cuv. & Val., should stand for this fish, as such a marked increase in the number of teeth and scales, if fixed characters, would give it specific rank. Two specimens were taken. Length 1.50-6 inches. Guam, July, 1900. *Hab.* Polynesia, Marianas.

GENUS **ZABRASOMA** SWAINSON.

207-210. *Zabrasoma guttatus* Forst. Hamoktan.

Head 3.50; depth 1.50; eye 3.50, 3 into snout; interorbital 2 into snout; D. IX 28; A. III 23; V. I 5; P. 15. Scales very small, about 120 in lateral line. Body elevated and compressed. Snout slightly concave, each jaw with six deeply lobate incisors on each side. Branchiostegals 5. Pseudobranchiæ present. Fins: Caudal sub-truncate, the longest ray equal to length of pectorals, 3.33 into length of fish. Caudal peduncle high, about 2 into head, the spines about equal to one-half the height of the peduncle. Color in spirits: Brownish with two bluish white cross bands on the body and one on the shoulders extending down on opercles. These bands are slightly oblique, the first and second (measured on the median line) are about half as wide as eye; the third is narrow. The posterior two-thirds of the fish, including dorsal and anal fins are covered with numerous round whitish dots about the size of the pupil; these dots are blue in life. The thorax and ventrals are bluish white. The anterior half of caudal is yellowish white shading into dusky on posterior edge. Pectorals yellow. Four specimens, length 6-8 inches, were taken at Agaña, Guam, June 28, 1900. *Hab.* Western Pacific, Marianas.

211. *Zabrasoma agaña* sp. nov.

Head 3; depth 1.66; eye 3, 2 into snout; interorbital 3.33, equal to eye in specimens 4 inches long; D. V, 25; A. III 20; V. I 5. Scales minute, rough. Body very much compressed and elevated. Snout concave and somewhat produced. The caudal peduncle is equal in height to width of eye, and is one-third longer than the spine, which is white. The mouth is small; there are about 9 lobate teeth on each side of upper jaw. Branchiostegals 5. Pseudobranchiæ present. Fins: Caudal almost square, but the upper edge is a little the longer; the longest ray 4 into length of fish without caudal. The pectorals are equal in length to head, and about one-third longer than the ventrals. The posterior angles of dorsal and anal are rounded. Color in spirits: Yellowish; fins all similar in color; in some specimens the fins are a little brighter yellow. A white streak, one-half as wide as eye, extends back on the median line from near posterior edge of opercle to about on a line with base of tenth soft dorsal ray. Seven specimens, 2-4.50 inches in length, taken at Agaña, Guam, June 14, 1900. *Hab.* Marianas. Type is No. 211, B. P. B. M.

GENUS **SIGANAS** FORSKÅL.**212. *Siganas marmorata* (Quoy & Gaim.)**

Head 4.33; depth 2.33; eye 3.33, equal to maxillary; interorbital 3.66; D. XIV 10; A. VII 9; V. 1 3 1. Scales minute. Branchiostegals 5. Pseudobranchiæ well developed. Body oval, strongly compressed. Snout rather blunt and rounded; upper jaw somewhat overhanging. Teeth: A single row of cutting incisors in each jaw. Fins: Dorsal spines strong, the fourth the longest, its length equal to distance from the first vertical spine. Caudal only slightly forked, its longest ray equal to head; first ventral spine 1.33 into head, reaching more than half-way to anal. Color in spirits: Brown with wash of bluish; head and back covered all over with blue vermiculated lines which are wavy and longitudinal on the sides. Caudal, dorsal and anal with brownish lines. Pectorals yellow. Two specimens. Length 3-7 inches. Agaña, Guam, May, 1900. *Hab.* Western Pacific, Marianas.

213. *Siganas hexagonata* Günth.

Head 4; depth 2.20; eye 3.50; interorbital 3; D. XIV 10; A. VII 9; V. 1 3 1. Scales distinct but small. Body oval and compressed; profile slightly convex. Maxillary equal to diameter of orbit, 3.50 into head, its distance from orbit equal to its length. Teeth: A single row of cutting incisors in each jaw. Branchiostegals 5. Pseudobranchiæ well developed. Caudal peduncle much compressed, its height 3 into head. Fins: Caudal deeply forked, its upper lobe slightly the longest, 3.20 into length of body; the depth of fork 1.50 into head. Soft dorsal and soft anal about equal in height and length; the longest ray of dorsal is 1.66 into head. Pectoral 1.25 into head, its base a little greater than diameter of orbit. Color in spirits: Blue with yellowish spots about one-half the diameter of pupil in size all over the body and head. These golden spots have narrow margins of black, outside of which the blue ground color shows in more or less hexagonal form. Dorsal, caudal, anal and ventral dusky bluish. Pectorals yellowish. Length of above specimen 13 inches. Four small *Teuthis* length 4-5 inches, which I take to be the young of this species, were captured at the same time. These show very indistinct hexagonal markings, and the general color is a much lighter blue with from 8-12 round black dots, one-half the size of pupil, scattered over the sides of the body. There is also a black opercular splotch on the upper posterior margin of opercle. The caudal is deeply forked. Head 4; depth 2.50; eye 3; interorbital 3. Agaña, Guam, July 12, 1900. *Hab.* Polynesia, Marianas.

214-215. *Siganas rostrata* Cuv. & Val.

Head 4.50; depth 3; eye 3.25; interorbital 3.20; D. XIV 10; A. VII 9; V. 1 3 1. Body oval and compressed. The dorsal and

abdominal profiles are equally convex. Mouth is rather small; the maxillary is contained about 4 into head, its distance from the anterior edge of orbit is one-half its length. Teeth: A single row of cutting incisors in each jaw, about 18 on each side of upper. Branchiostegals 5. Pseudobranchiæ well developed. Fins: The caudal is deeply forked, its upper lobe a little the longest, 3.66 into length; the depth of the fork is 1.20 into head. Caudal peduncle unarmed, its height is 4.50 into head. Soft dorsal and soft anal of about equal length, but the dorsal is a little the highest; its longest ray is contained 2 into length of pectorals. The base of pectorals equal the diameter of eye. Color in spirits: Bluish, the body covered with indistinct mottlings of yellowish spots and lines, wider than the interspaces of blue ground color; lighter blue on belly and thorax. The caudal in one specimen seems to be a uniform dusky bluish; in the other there are indistinct blotches of yellowish. Pectorals are yellowish, ventrals bluish; dorsal and anal dusky, the webs more or less yellowish white. Two specimens, length 10-11 inches. Guam, July 12, 1900. *Hab.* Western Pacific, Polynesia, Marianas.

GENUS **MONOCEROS** BLOCK.

216-221. *Monoceros garretti*⁶ sp. nov.

Head 3.50; depth 2; eye 3.50, 2 into snout; D. VI 28; A. II 29; V. I 3; P 16. Scales minute, rough. Body elevated and compressed. Two bony plates on the caudal peduncle with short, sharp keels. The yellow covering of the base sharply defined and separated by a black line. The snout is concave, but the profile is more rounded than in *M. lituratus*. The distance from base of first dorsal to the upper nostril is 1.33 into head. Mouth is perfectly horizontal on the median line. Teeth: A single series of sharp, compressed incisors, not serrated, about 10 on each side of upper jaw. Branchiostegals 4. Pseudobranchiæ developed. Fins: The height of the fourth dorsal spine equal to length from its base to anterior base of first dorsal spine. The first dorsal spine 2 into head. The caudal fin is emarginate, the upper lobe slightly the longest, its length 4.20 into height. Longest ray of pectoral 1.50 into head, its base 4.88. Longest ray of ventrals about equal to pectorals. The posterior margins of dorsal and anal forming acute angles. Color in spirits is a uniform lamp-black with a slight wash of neutral. There is a narrow yellowish green line extending down each side the snout from anterior of orbit to form a more or less complete circle on the lips. Two round yellow spots on caudal peduncle forming the bases of the keels. The caudal is black with a sub-terminal band of yellow, and a marginal band of white. The dorsal is black with a sub-marginal line of white which begins very narrow and gradually widens posteriorly to half the width of the

⁶Named after Andrew Garrett.

fin; there is a narrow margin of black above this. There is no colored line at base of dorsal, as in *M. lituratus*. The anal fin is greenish, with a narrow black margin and the inner third with a wash of brown. Pectorals and ventrals brownish. This species is closely related to *M. lituratus* (Forst.), but differs in having a more rounded profile, a decreased number of dorsal and anal rays, a much darker general coloring, without a yellow line at base of dorsal, and with two distinct yellow spots on caudal peduncle separated by a sharply defined black area. These color markings are fixed and distinct in the entire series. This is undoubtedly the fish figured by Mr. Garrett in "Fisches d. Sudsee," Tafel 28, but it is not the fish described in the text, Vol. I., p. 124, which is a good description of *Monoceros lituratus* now before me. I have carefully compared a series of these two species of the same size and age, and as the differences stated above hold good, even in the details of the markings, I cannot put them under one species. Quoy & Gaimard, description and figure, will not fit either of these species, and I think their species should stand *M. carolinarum*, Quoy & Gaim., until the fishes of the Caroline Islands are better known. Their type specimen was eaten, and the figure may be approximately correct. Six specimens, length 3-6 inches. Agaña, Guam, July, 1900. *Hab.* Polynesia, Marianas. Type of species is No. 216, B. P. B. M.

222-223. *Monoceros annulatus* (Quoy & Gaim.).

Head 4; depth 2.33; eye 2.66; interorbital 3; D. VI 27; A. II 28; V. I 3. Scales minute, rough. Body compressed and elevated. Forehead with a short projecting horn, situated below the level of the centre of orbits. In specimens 6.50 inches in length the tip end of this horn is equidistant from the orbit and teeth of upper jaw. Its length, measured from the orbit, 2.33 into head. Teeth small, finely serrate on inner side. The profile from first dorsal spine to tip of snout is slightly convex. Caudal plates absent in young; in specimens 6 inches in length are scarcely visible, and are entirely unkeeled. Color in spirits: Uniform light grayish brown, lighter on the caudal peduncle. Fins dusky, the caudal greenish yellow on the posterior half. Two specimens. Length 4-6.50 inches. Agaña, Guam, July, 1900. *Hab.* Western Pacific, Marianas.

224. *Monoceros lituratus* (Forst.).

Head 3.50; depth 2; eye 3.25, 2 into snout; D. VI 30; A. 30; V. I 3; P. 16. Scales minute, rough. Body elevated and compressed. Two bony plates on caudal peduncle with short, sharp keels—the yellow coloring of the bases intermingling. The dis-

tance from the base of first dorsal spine to upper nostril is 1.33 into head. The mouth is perfectly horizontal on the median line. Teeth: A single series of compressed incisors, 10 on each side of upper jaw. Branchiostegals 4. Pseudobranchiæ developed. Fins: The height of the fourth dorsal spine a little greater than the distance from its base to anterior base of first dorsal, the first dorsal spine about 2 into head. The caudal emarginate, the upper lobe slightly longer, its length 4.20 into length of fish. Longest ray of pectoral 1.33 into head, its base 4.25. Longest ray of ventrals 1.66 into head. Color in spirits: Light brown with a wash of grayish; a greenish streak, beginning at anterior edge of orbit, descends in a curve along sides of snout to angles of the mouth. Back with a blue line along base of dorsal fin. The interorbital space is crossed by a green band about half as wide as eye; this band crosses forehead and curves back over orbit to near top of opercles—in specimens long in spirits this green interorbital marking is apt to be faded out. The sides of caudal peduncle are yellow without a black area between the two spiny plates. Dorsal black with a white line beginning narrow in front, broadening posteriorly to half the height of the fin; above this is a narrow terminal line of black. Anal greenish white margined with a narrow line of black, the inner third without the conspicuous wash of brown seen in *M. garretti*. Pectorals and caudal brownish, the latter with a green and white margin posteriorly. Three specimens, length 5 inches. Agaña, Guam, July, 1900. *Hab.* Polynesia, Marianas.

225-227. *Monoceros marginatus* Cuv. & Val. Taloga.

Head 3.66; depth 2.33; interorbital 3.50; eye 4.50, 3 into snout. Forehead with a short horn-like prominence projecting forward directly in front of eye. In specimens 11 inches in length this horn is about three-quarters of an inch; measured from the orbit to tip it is 3 into head; in younger specimens it is shorter, and is entirely absent in specimens three inches in length. D. VI 29; A. II 28; V. 1, 3. Scales minute, rough. Mouth perfectly horizontal; about 15 small sharp teeth on each side of upper jaw, about 12 on each side below; these teeth are minutely serrated on their inner side. Branchiostegals 4. Pseudobranchiæ well developed. Caudal peduncle with two sharply keeled bony plates with blue bases, absent in young. Fins: The caudal is broad and emarginate, the upper ray the longest, being equal to length of head. The dorsal has its origin directly above the posterior line of the head; its spines and rays are markedly triangular in transverse section, the first spine the longest, 1.66 into head. Ventrals are short, 2 into head. Pectorals 1.33 into head, their bases equal to eye. Color in spirits: A dirty bistre olive, slightly lighter below, dorsal and anal slightly darker with a narrow black margin. Anal with from 1-3 longitud-

inal lines. The caudal and pectorals with a more decided wash of yellowish, and with lighter margins. Five specimens, length 3-11 inches. Agaña, Guam, July 14, 1900. *Hab.* Western Pacific, Marianas.

FAMILY BALISTIDÆ.—TRIGGER-FISHES.

GENUS BALISTES (ARTEDI) LINNÆUS.

228-229. *Balistes undulatus* Mungo Park.

Head 3; depth 2.25; eye 5.50; interorbital 4.50; D. III, 28; A. 24. Scales 31, in series from base of spinous dorsal to vent, about 48 in lateral line. Caudal peduncle with 6 strong spines on each side, arranged in a double row—sometimes with an extra spine on one side. Color in spirits: A lamp-black; head and body with about 15 oblique or undulating lines of yellowish (reddish in life) about as wide as pupil; a broad line comes from each lip and, uniting about on a line with the eye, extends back to a little past and below the pectorals; another very distinct red line, just above this, extends from the upper lip to anus; a yellow line around lower lip; thorax black, without markings; spinous dorsal black; pectorals, anal and soft dorsal yellowish, the rays dusky at base; rays of caudal dusky, the membrane yellow, the fin white at tip. Two specimens. Length 7 inches. Guam, July 13, 1900. The markings of this species are very well shown in Quoy & Gaimard's figure (*Voy. Uran. Zool.*, p. 208, pl. 47, fig. 1), but the caudal peduncle is drawn much too thin. In the specimens examined the caudal peduncle is very short and high, its height 2.50 into head. *Hab.* Western Pacific, Polynesia, Marianas.

GENUS BALISTAPUS TILES.

230-233. *Balistapus aculeatus* (Linn.).

Head 2.75; depth 2.50; eye 5.50; D. III, 25; A. 22. Scales 23, in a series from dorsal fin to vent. The caudal peduncle is armed with two and a half rows of sharp, curved spines with black bases. Fins: Caudal fin contained 6.5 times into length of the fish. Ventrals almost obsolete, represented by a single movable spine. Second dorsal and anal of moderate height. Pectorals short, about as broad as long, their bases black, the rays white. Scales rather large, some osseous scutes behind gill openings. Cheeks entirely scaled. Colors: Sides blackish, with two pairs of oblique whitish or yellowish bands descending from middle of sides to the anal fin. A broad black cross band between the eyes. Three blue vertical lines from the eye to the base of the pectorals. A yellowish band runs from the bases of the pectorals along the sides of the head to

the snout; a brighter yellow line on premaxillary. Variations: One adult specimen has two extra spines on one side of caudal peduncle; these are just above the normal rows. The young are shorter and deeper, the head being 2.50 into total length, and the depth 2. A good series of specimens were secured, taken for the most part inside the reef, near Agaña, Guam, June, 1900. *Hab.* Western Pacific, Marianas.

234-237. *Balistapus rectangulus* Bl.

Head 2.66; depth 2.33; eye 6; interorbital 4; D. III 23; A. 21. Scales of medium size, entirely covering the cheeks; 4-5 osseous plates behind gill openings, three and one-half rows of recurved black spines on sides of the caudal peduncle; no groove in front of eye. Teeth notched and compressed, about 4 on each side of upper jaw. Fins: First dorsal spine very strong, 2.25 into head; caudal square; ventral spine movable. Color in spirits: Olive; belly, thorax and chin yellowish; a broad black band with lighter (bluish) edges over top of head through eyes, and widening as it extends obliquely back on sides of body to anus and anterior two-thirds of anal fin. Caudal peduncle encircled with black, which extends horizontally forward on the sides in the shape of an acute angle; this black is edged with lighter colored lines (yellow in life); a light yellow line passes from posterior base of soft dorsal horizontally forward to the big black line mentioned first; a narrow line extending down from anterior of orbit to a little in front of pectorals; the interorbital space is crossed by three narrow deeper black lines on the black field; webs of spinous dorsal and base of pectorals black; fins yellowish white. Four specimens, 4-6 inches in length. Agaña, Guam, June 28, 1900. *Hab.* Polynesia, Western Pacific, Marianas.

FAMILY MONACANTHIDÆ.—FILE-FISHES.

GENUS AMANSES GRAY.

238-241. *Amanses sandwichensis* Gray. Paloman.

Head 3.25; depth 2; eye 5; interorbital 3.50; D. I 36; A. 31. Scales minute, the skin velvety to the touch. Two pair of strong curved spines on each side the tail. Body elevated and compressed. Profile of snout slightly concave. Dorsal spine without barbs. Caudal fin rounded. Ventral spine not movable. Dorsal spine situated above anterior half of orbit. Color in spirits: A dirty light brown; the soft fins yellowish white; the dorsal spine brown; the caudal dusky with yellowish white on posterior part. Four specimens, length 4-12 inches. Guam, July, 1900. The young

specimens do not have spines on the sides of the tail, and have the dorsal spine much rougher, with indication of two or three rows of barbules. *Hab.* Western Pacific, Marianas.

GENUS **OXYMONACANTHUS** BLEEKER.

242. Oxymonacanthus longirostris Bleek.

Head 2.66; depth 2.66; eye 5; interorbital 4; D. 1 35; A. 29. The sides of the caudal peduncle with brush-like setiform spines. Body oblong, compressed. The upper and lower profile about equally oblique; the snout much prolonged, upper profile concave, turned up at tip. Skin velvety. Mouth tubular, lips very thin. Gill openings small, situated on a vertical line a little posterior of orbit. Fins: The dorsal spine is of moderate strength, more or less rounded—not 4-edged; the middle of its base is directly (in line) above the pupil of the eye; its length is 1.50 into head, and it is equal to the distance from anterior margin of eye to posterior margin of lips. The barbs are small and more or less irregularly arranged, the most prominent being a row deflected downward on the back of the spine. The ventral spine is rather prominent, rough, fixed, with a thin abdominal membrane between it and belly. Caudal rounded, short, 2.25 into head. Ventrals 3.50 into head. Color in life: Blue, with yellow dots. In spirits: Light gray, with a slight wash of bistre-brownish. Seven longitudinal rows of round white spots about the size of the pupil extending from the head to tail; tip of snout white, followed by a narrow black ring; a line of white extends from near gape to a little below the orbit; another white line extends from the middle of sides of the snout to orbit. more or less white dots below the eye and on sides of the thorax; just above the ventral spines is a black splotch with numerous very fine white dots. Caudal fin brownish, white at tip, with an incomplete intermarginal black line half the width of eye. Dorsal, anal and pectorals white. Two specimens, length 4 inches. Agaña, Guam, June 14, 1900. *Hab.* Marianas.

FAMILY **OSTRACIIDÆ**.—TRUNK-FISHES.

GENUS **LACTOPHRYS** SWAINSON.

243. Lactophrys nasus (Bloch.).

Carapace, 5-ridged and spineless; P. 10; A 9; C. 10. Color in spirits: Greenish yellow, with numerous black spots along sides. One specimen of a very young, length three-quarters of an inch, was secured. Guam, July 14, 1900. *Hab.* Seas of India to Malay Archipelago and western Pacific, Marianas.

GENUS **OSTRACION** ARTEDI.**244. Ostracion cubicus** Artedi.

Carapace, 4-ridged, without spines; D. 10; A. 9. The back slightly convex, no raised ridge on median line. Color in spirits: White with scattered round black dots all over the body. One specimen, length three-quarters of an inch. Guam, July 14, 1900. *Hab.* Red Sea, western Pacific, Australia, Marianas.

358-361. Ostracion cornutus (Linn.).

Head 3.50; depth (at hump) 2.50; eye about 2; interorbital very concave, 4 into length; frontal spines 5.50 into length; posterior spines about the same; D. 9; A. 9; P. 11. Scales: About 10 plates in a line between caudal and eye. Body shortened and angular, the carapace 4-ridged, with a small ridge in the middle of back. The hind portion of tail covered by soft skin. Mouth small, maxillaries and premaxillaries coalescent. Teeth rather slender and in one row, about 10 in each jaw. Color in spirits: Carapace bistre-brown, with numerous irregular and indistinct darker blotches; below yellowish. Four specimens, length 1.50-5.50 inches. Agaña, Guam, July 12, 1900. *Hab.* Western Pacific, Malay Archipelago, Marianas.

246-248. Ostracion punctatus Bl. **Danglum.**

Head 3.50; depth 3; eye 3, about 2 into snout; interorbital 1.12; D. 9; A. 9; C. 8; P. 10. Carapace 4-ridged without spines. Back somewhat rounded without any ridge in median line. Interorbital space almost flat. Teeth: About 10 conical brown teeth in each jaw. Fins: Caudal 4.50 into length. Pectorals 1.50 into head. Dorsal and anal slightly shorter. Color in spirits: Brown, with small blue dots all over the body; older specimens have few or no spots on snout, and the spots are larger on sides and belly. Fins are dusky, with black bases. Young specimens have bluish spots on caudal fin, while old specimens have the posterior third of fin white. Three specimens, length 3-6 inches. Guam, June 14, 1900. *Hab.* Polynesia, western Pacific, Marianas.

FAMILY **TETRAODONTIDÆ**.—PUFFERS.GENUS **TETRODON** LINNÆUS.**249. Tetrodon papua** Bl.

Head 2.66; depth 2.1; eye 5, 3 into snout; interorbital concave, 3 into head; D. 9; A. 10; P. 16; C. 10. Spines minute, covering the entire body, except caudal peduncle. Nasal organs quite

inconspicuous. Back compressed into a ridge. Bones of the upper and lower jaw in the form of a beak, with cutting edge. A median suture present. Fins: Longest dorsal ray equal to longest anal ray, 2 into head; longest ray of caudal 3 into length of fish; the space between the hind margin of dorsal and the base of caudal 4 into length. Color in spirits: Above, a sepia brown covered with blue spots with black edges; these spots thicker and smaller than pupil, on the posterior half; on the sides of head the spots are as large or larger than the pupil; several short radiating blue lines about eye; three or four across interorbital space. Older specimens have blue lines over the snout and on sides of the mouth. Under parts yellowish white with a median blue line on belly to anal in larger specimens. A black spot, a little larger than eye, covering the base of dorsal. Pectorals, anal and dorsal fins yellowish white. Caudal dusky yellow with numerous blue lines and dots. Six specimens, 1.25-3 inches in length, were taken at Agaña, Guam, inside the coral reef, July 12, 1900. These fish are usually found in pairs swimming about the coral reef; it is even difficult to frighten them so the two will separate, and when this is accomplished they seem to invariably join the same partner again. *Hab.* Polynesia, Marianas.

250. *Tetrodon reticularis* Bl.

Young: Head 2.50; eye 3.50; caudal rays 4 into length of fish and equal to distance from caudal to anterior base of dorsal; pectorals 2 into head; small spicules all over except at base of caudal; interorbital 3.50 into head. Color: Back, head and cheeks brown, with scattered blue spots. Two blue concentric lines below eye. Base of pectorals black with one or two concentric bluish rings. Belly yellowish white with about 18 longitudinal brown lines about three times as wide as the interspaces. Caudal dusky. Pectorals, dorsal and anal yellowish. One specimen, a young, 1.50 inches in length, was the only representative of this species secured. Agaña, Guam, July 12, 1900. *Hab.* Western Pacific, Marianas.

251. *Tetrodon immaculatus* Bl.

Young: Head 2.33; eye 3.50 into head; length of caudal ray 3 into head; pectorals 3; interorbital 3 into head. Color in spirits: Brownish above with about 8 oblique narrow black lines extending up and back from vicinity of pectorals to caudal and dorsal; below yellowish white, unstreaked. Caudal dusky, with black upper and lower margins. Pectorals, anal and dorsal white. One specimen, length 1.50 inches, taken at Agaña, Guam, July 12, 1900. *Hab.* Polynesia, Marianas.

252. *Tetrodon stellatus* Bl.

Young: Head 2.50; eye 3; interorbital 4; caudal rays 3.50 into length; pectorals 3. Color: Almost a lamp-black above, un-

spotted; white below, with 16 very black longitudinal lines of about the same width as the interspaces. A brown ring around snout. A few small blue spots on caudal peduncle. A black splotch larger than eye at base of pectorals. One specimen, length 2.25 inches, from coral reef at Agaña, Guam, June 12, 1900. *Hab.* Western Pacific, Polynesia, Marianas.

FAMILY **DIODONTIDÆ**.—PORCUPINE-FISHES.

GENUS **DIODON** LINNÆUS.

253. *Diodon hystrix* Linn. Porcupine-fish.

Head 3; depth 3.33; D. 15; A. 14. Spines strong; the spines behind the pectorals longest and strongest; frontal spines shorter, about as long as eye; spines about the dorsal and anal fins short, their bases free from spines. Caudal peduncle with two or three half rows of short spines above and below. Anal, dorsal and caudal of about equal length, 2 into head. Pectorals a little shorter, the upper lobe slightly longer. Color in spirits: Back and sides dusky, with numerous black spots. Belly white. All the fins greenish, with numerous round black dots. One specimen, length 15 inches. Agaña, Guam, July 12, 1900. *Hab.* Seas of India, western Pacific, Marianas.

FAMILY **SCORPÆNIDÆ**.—ROCK-FISHES.

GENUS **SCORPÆNA** ARTEDI.

254. *Scorpæna bakeri* sp. nov. Baker's Rock-fish.

Head 2.50; depth equal to head; eye 4; interorbital 5.50 into head; snout 3 into head; D. XII 10; A. III 5; V. I 5. Maxillary 1.80 into head. Scales about 34, breast scaly, head naked. Body oblong, somewhat compressed. Head large, naked above, with horny spines and dermal filaments. Teeth villiform on jaws, vomer and palatines. Supraocular tentacle more than twice diameter of eye. The dermal flaps along sides of body less than diameter of eye. Occiput with a very shallow depression. Interorbital groove deep and narrow; suborbital stay weak, a small spine in its middle and at its posterior end. Posterior edge of preopercle with four strong spines, the upper one the longest, equal to diameter of pupil and with a minute superimposed spine on its base. Pre-orbital with a strong spine directed forward and a strong one directed back and down. Nostrils with a distinct spine and dermal filament. Supraorbital bones each with four spines. Opercle with three or four spines; seven spines on each side of nape above opercles. Fins: The second anal spine longest and strongest, its

length 2 into head; fourth, fifth and sixth dorsal spines the longest, 2.50 into head. Pectorals equal to distance from posterior margin of opercle to nostril. Base of anal 3.20 into base of dorsal. Caudal rounded, about equal in length to pectorals. None of pectoral rays branched. Color in spirits: Body mottled with dusky and grayish, with slight trace of Indian red; the under side of head is white with about 6 distinct brownish cross bands half as wide as interspaces. Fins grayish, mottled with black and white. Four specimens, length 1.50-2.50 inches. Guam, July 14, 1900. *Hab.* Marianas. Named in honor of Capt. Jesse E. Baker, U. S. A., whose assistance in the author's field work has been greatly appreciated.

GENUS **SCORPÆNOPSIS** HECKEL.

255. Scorpænosis guamensis Quoy & Gaim.

Head 2.35; depth 3; eye 3; interorbital 2 into eye; length of snout slightly less than eye; maxillary 2.50; D. XII 9; A. III 5; V. I 5; P. 19. Scales 44; cheeks and opercles scaled. Teeth villiform in jaws and vomer. Interorbital space concave. No orbital tentacles, no groove beneath the eye. Maxillary reaches to below middle of orbit. Supraorbitals, occipitals, opercles and orbitals with acute spines. Color in spirits: Brownish, with marblings of dark brown. One specimen, length about 3 inches. Guam, July 13, 1900. *Hab.* Malay Archipelago, Marianas.

GENUS **SYNANCEIA** BLOCK.

256-257. Synanceia thersites sp. nov.

Head, exclusive of skinny flap, 2.50; depth 2.66; eye 8; premaxillary 3, very narrow and bearing the villiform teeth of upper jaw; the maxillary flat and wide, its width slightly greater than orbit; interorbital space fossa-like, 3.50 into head; D. XIII 7; A. III 6; P. 19; V. I 5. Numerous dermal flaps on head and body. Head monstrous and irregularly shaped; lower jaw almost vertical; the upper margin is on the dorsal surface, its length 1.50 into head. Villiform teeth in both jaws, but none on vomer or palatines. Gill-rakers consisting of villiform teeth slightly longer at angle, and longer curved teeth on head of pharyngeals. Branchiostegals 7. Pseudobranchiæ present. Fins: The dorsal is continuous, the soft part highest. Caudal more or less rounded, 2 into head. Ventrals 1.20. Pectoral very wide, its base about equal to its longest ray. Color in spirits: The general ground color is almost a sepia brown, darker with a wash of greenish on posterior part. There is a more or less greenish white area near the middle of the body, under 6-8 dorsal spines. There is a greenish white band about as wide as eye which forms a band about the middle of the soft dorsal, anal

and the posterior part of body. The caudal fin is narrowly tipped with yellowish white with a black subterminal band as wide as eye; anterior of this is a white band of about equal width; the remainder of the fin is blackish. The pectorals are margined with white, their ground color is dusky with more or less mottling of greenish white. Ventrals are similarly colored, except that the mottlings take more of the form of four or five incomplete cross lines. Pectorals and anal dusky, with mottlings of greenish white. Two specimens, length about 9 inches. Guam, July 12, 1900. The dorsal spines of this fish are very poisonous, and the natives fear them more than scorpions. One of the above specimens was damaged by having its head crushed by a native who was intent on killing the fish. Type No. 256, B. P. B. M. *Hab.* Marianas. Named for Thersites, "The ugliest of the Greeks."

GENUS **PTEROIS** CUVIER.

258. Pterois zebra Cuv. & Val.

Head 2.66; depth 2.66; eye 2.66 into head; interorbitals 4.50 into head; D. XI 13; A. III 6; P. 17; V. 15; C. II 14 II. Scales 10-59-13. Mandibles 1.16 into head. Maxillary 1.50 into head, reaching to a line with anterior margin of pupil. Gill-rakers short and blunt, about 9 on lower arm—armed with minute teeth. Body oblong, compressed. Teeth villiform in jaws and vomer. Interorbital space deeply concave, the upper margins each with a fleshy tentacle one-third as long as head, and alternating white and brown in color. There are four fleshy tentacles on the snout, one just posterior of each anterior nostril, and two in the middle near tip of snout. There is also a short fleshy tentacle on lower anterior corner of preorbitals, and two on each lower posterior margin of each preopercle. The upper margin of orbit is armed with one large and three small spines. Preorbital is armed with several spines and ridges, one ridge extending back near the lower margin of inferior orbital to the preopercle. Immediately beneath this ridge are several small spines. Posterior margin of preopercle armed with three spines. About eight spines on top of head just back of interorbital region. Continuing from the anterior end of lateral line is a row of five small spines extending to orbitals. Scales: Lateral line well developed; scales on nape, body and head, except on snout and interorbitals. Branchiostegals 7. Pseudobranchiæ well developed. Fins: Caudal is rounded, 1.15 into head. Pectorals very elongate, reaching tip of caudal. Spinous dorsal long, the longest spine 2 into length. Ventrals slightly longer than head. Soft dorsal and anal reaching beyond the base of caudal, their longest rays about equal, 1.50 into head. Base of anal 3.08 into base of dorsal. Color in spirits: Ground color sepia brown; three single yellowish white lines over back of neck between the orbitals

and first dorsal spine. Beginning with the third dorsal spine the body is banded with twelve narrow, double, white lines with a narrow interspace of brown between each line; these lines seem to be in pairs, four of the narrow white lines with their interspaces making up a band, of which there are seven on the body with interspaces about equal to diameter of eye. The last three pairs of bands extend obliquely forward and down, on the caudal peduncle. Thorax is yellowish white with one broad band of brown extending from the base of one dorsal fin to the other. Snout and under part of head yellow, the snout having two brown spots on each side; a broad brown band from lower anterior margin of eye to posterior end of maxillaries; another, edged with white extends from top of orbitals through eye to lower anterior margin of opercles. Axis of pectorals black, with a wide white line; a curved white line on the fin just posterior of axis. The base of pectoral is brown; a white area on base of rays surrounded by a clouded black area, the black extending half the distance of the rays. Ventrals have yellow rays and black membranes. All the remaining fins are marked with alternating irregular lines of brown and white. The above description is of a male, length 4 inches. Guam, July 13, 1900. A young female, length about 3 inches, taken at the same time, while structurally similar is quite differently marked, and much more nearly resembles Quoy & Gaimard's figure (Voy. Astrol. Poiss, Pl. XI., p. 6), except the upper portion of the white lines are not distinctly divided. *Hab.* Polynesia, Marianas, seas of India.

FAMILY PLATYCEPHALIDÆ.

GENUS **PLATYCEPHALUS** BLOCH & SCHNEIDER.

259-60. *Platycephalus punctatus* Cuv. & Val.

Head 2.66; depth 3.50 into head; eye 4.20 into head; snout 3; interorbital 4 into eye; D. VIII, 11; A. 12. Head flat, spinate; lower jaw the longer. Body sub-cylindrical. The lateral line smooth. Teeth villiform; the maxilla reaches to anterior margin of eye. Supraorbital margin toothed posteriorly, and with a distinct spine anteriorly. Lower margin of inferior orbital with a row of spines which end in the strong spine of preopercle; two small spines just below the preopercular spine. Two spines on snout. Occipital region with several spines. Opercle with two spines on upper posterior part; just above opercle is an irregular row of about six spines reaching to orbit. Fins: Caudal square. Ventrals 1.20. The first dorsal and anal fins of about equal length, 2 into head. Base of soft dorsal slightly less than base of anal. Color in spirits: Grayish, with four or five wide brownish cross bands from the back to middle of sides. Under surface white. Pectorals yellowish, with brown dots and lines. First dorsal yellow, with a

broad black mark on posterior third. Ventrals dark above and on posterior third. Soft dorsal and caudal yellowish, with brownish lines or dots. Anal yellow. Two specimens, length 4-6 inches. Guam, July 13, 1900. *Hab.* Seas of India to Malay Archipelago, Marianas.

FAMILY **AGONIDÆ**.—SEA-POACHERS.

GENUS **PERCIS** SCOPOLI.

261-62. Percis cephalopunctatus sp. nov. **Pipupu.**

Head 3.66; depth 6.30; eye 4.66; snout 2.66; interorbital 3 into eye; D. IV 21; A. 17; V. 15. Scales 71. Mandible 2.15. The lower jaw the longer. Two opercular spines. Body somewhat elongate and sub-cylindrical. Head somewhat depressed. Villiform teeth in jaws and vomer, none on palatines; outer row in jaws somewhat enlarged with three canines on each side in anterior part of lower jaw. Branchiostegals 6. Pseudobranchiæ present. Scales ctenoid. The spinous dorsal is scarcely connected with soft dorsal. Gill membranes connected at isthmus. The second dorsal spine the longest, equal to orbit. Fins: Caudal slightly rounded. Pectorals 1.50 into head. Base of anal 1.50 into base of dorsal. Ventrals 1.15 into head. Color in spirits: Upper surface greenish, with 9 indistinct darker lines over the back. Below axis the color is yellowish white with 9 greenish bands; the upper parts of these bands are all united by a narrow greenish line on the axis extending from axis of pectorals to lower part of caudal fin; just above this line and alternating with the green bands of the lower half are 9 greenish spots almost as large as eye, which have wide yellowish white margins; these extend from pectoral fin to caudal. A large brown spot at base of pectoral fins. Two brown spots on lower part of opercle. Four large brown spots on cheeks, and two or more on jaws. About fourteen small brown dots, smaller than pupil, scattered over snout and top of head. Spinous dorsal white. Soft dorsal with three rows of brown spots. Caudal with a big dark brown blotch on its basal half, with scattered brown dots around it. Pectorals, ventrals and anal white. Three specimens, length 4-5.50 inches. Guam, June 14, 1900. *Hab.* Marianas.

FAMILY **GOBIIDÆ**.—GOBIES.

GENUS **ELEOTRIS** (GRONOW) BLOCH & SCHNEIDER.

263-66. Eleotris fusca (Bl.).

Head 3; depth 4; eye 6.30; snout 3.66; D. VI 9; A. 9. Scales rather small, about 62 series behind pectoral fin. Preopercle with blunt spine bent down and forward. Body subcylindrical, head oblong. Teeth in setiform bands, none on vomer or palatines.

Two dorsal fins. Anal papillæ distinct. The back, in front of first dorsal somewhat concave. Fins: Caudal rounded. First dorsal fin small, its height a little more than one-half depth of body. Pectorals equal to distance from hind margin of preopercle to anterior of orbit. Soft dorsal fin almost one-half higher than spinous dorsal, its base slightly greater than base of anal. Color in spirits: Leaden black, sometimes lighter below with slight wash of yellowish. Fins dusky with lighter fine yellowish lines or dots. Four specimens, length 5-6.50 inches. Guam, May 31, 1900. *Hab.* Polynesia, India, Malay Archipelago, Marianas.

GENUS **GObIUS** (ARTEDI) LINNÆUS.

267. **Gobius deltoides** sp. nov.

Head 3.50; depth 5; eye 4; interorbital 2 into eye; snout 3 into head; D. VI, I II; A. I II. Scales 28 from upper posterior margin of opercle to caudal; no lateral line; head fully scaled. Body slightly elongate, compressed posteriorly. Branchiostegals 5. Pseudobranchiæ present. Teeth in two series in each jaw, the outer row with larger recurved canines. Ventral fins united, forming a disk which is attached only at its base. Caudal rounded. Base of anal about equal to base of soft dorsal. Color in spirits: Yellowish white with about seven reddish brown blotches along the sides above the axis, alternating with similar spots below the axis. A black line extends vertically down from the lower margin of orbit to a brown spot below the eye; here the line divides into two, which extends under the chin, one on a line with the eye, the other forming an angle directed forward, the two lines thus forming the Greek letter delta. These two lines are broken by the isthmus. Anal fins slaty blue. Ventrals with a wash of bluish. The remaining fins are grayish with numerous small brown spots and lines. Eighteen specimens, length 1-2 inches. Guam, June 2, 1900. *Hab.* Marianas.

GENUS **ELĒOTRIS** (GRENOW) BLOCH & SCHNEIDER.

268. **Eleotris miniatus** sp. nov.

Head 3.50; depth 3.25; eye 3; snout equal to diameter of eye; the interorbital equal to pupil; D. VI 7; A. II 9. Scales 26. Body oblong, slightly elongated. Teeth in jaws villiform, with some outer enlarged canines; no teeth on vomer or palatines. Fins: The third dorsal spine terminates in an elongated filament reaching half of the distance to base of caudal. The longest soft rays of dorsal and anal are about equal in length, and equal to length of head. Caudal slightly rounded. Pectorals slightly longer than head. Color in spirits: Olive brown with darker markings above

the axis which take on more or less the form of half bands from the back to the axis of the body. Most of the scales of the body have a small central dot of pearly white. There is a black band vertically down from the lower margin of the eye to the isthmus. Fins are all dusky. Three specimens, length 1.50 inches. Guam, July 1, 1900. *Hab.* Marianas.

GENUS **PERIOPHTHALMUS** BLOCH & SCHNEIDER.

269. *Periophthalmus kœlreuteri* (Pall.). Maching.

Head 3.50; depth 2 into head; eye 4.20 into head; D. xv, 12; A. 11. Scales 90. Eyes large and elevated. Anterior profile of head very abrupt. Body elongate, sub-cylindrical anteriorly, compressed behind. Teeth: About 23 conical pointed teeth in each jaw. Fins: Lower margin of caudal obliquely truncate. The spines of anterior dorsal fin very flexible. Pectoral with its basal portion muscular and free. Ventrals short, connected on their basal third. Color in spirits: Body olive brown; head may have numerous small dots of lighter color. Spinous dorsal dusky, tipped with white, and with a rather wide and distinct sub-terminal band of black. Soft dorsal broadly tipped with white, with a sub-terminal black band, below which is a narrow irregular line of white, the basal third of the fin being more or less white-dotted. Caudal and pectorals dusky. Ventrals white below, dusky above. Anal white. Four specimens, length 4-5 inches. Guam, June 14, 1900. *Hab.* Coasts of India, Andamans, Malay Archipelago, Marianas. These lung fishes are very abundant, and when frightened usually hop out of the water and take to land for safety.

FAMILY **BLENNIIDÆ**.—BLENNIES.

GENUS **SALARIAS** CUVIER.

270. *Salarias periophthalmus* Cuv. & Val.

Head 4.66; depth 5.33; eye 3.50; interorbital 2 into eye; D. XII, 20; A. 21; C. 15. No scales. Maxilla reaches to below hind margin of eye. Body elongate, cylindrical anteriorly. Snout blunt. Gill openings wide. A simple tentacle about half the length of eye above the orbit, and a fringed one at the nostrils. A row of small movable teeth in each jaw. Fins: Dorsal fin not continuous on to the caudal. Caudal is almost square; the lower rays, however, are a little the longest. Color in spirits: Yellowish white with about six pairs of slightly darker cross bands down the sides. A short oblique blue line just back of and below the eye. A few small dusky spots on side of head. Two rows of dark-margined ovate blue spots down the sides of body. Fins: Yellowish

white, the anal with a dark margin. Three specimens, length 2-4.50 inches. Guam, June 2, 1900. *Hab.* Andamans to Malay Archipelago, Marianas.

271. *Salarias nigripes* sp. nov.

Head 3.66; depth 3.20; eye 3; interorbital 2 into eye; D. 25; A. 17; V. 3; P. 15. No scales, but an incomplete lateral line which seems to terminate on a line with the tip of the pectoral fins. Maxillæ reaching to below the posterior part of eye. Teeth small, movable; a single row in each jaw; no canines. A small tentacle over the eye, and another at nostril. A fringed row of these short fleshy tentacles over the posterior margin of the head, from the upper margin of one opercle to the other. Body slightly elongate, compressed posteriorly. Branchiostegals 6. Pseudobranchiæ present. Fins: The caudal is square, and equal in length to pectorals. The dorsal commences on a line with tip of opercle and extends to base of caudal fin. The base of anal is contained twice into base of dorsal. Length of pectorals about equal to depth of body, their base 2 into head. Ventrals small, 1.50 into head. Color in spirits: A uniform warm sepia brown, with a few small white dots on snout and below the eye. Anal fin a uniform black. The remaining fins uniform with coloring of the body, except the upper anterior part of dorsal, and the upper third of caudal, which are white; the white on caudal beginning on the base of the upper two or three rays and broadening posteriorly.⁷ Thirty specimens, length 1-2.75 inches. Guam, July 12, 1900. *Hab.* Marianas.

272. *Salarias nitidus* Gunth.

Head 4.50; depth 5.66; eye 3 into head; interorbital 2 into eye; maxillæ reach to below posterior margin of eye; no scales; D. 32; A. 21. Branchiostegals 6. Gill openings wide. Teeth: A single row of small movable teeth in each jaw; posterior canines not always present. Body somewhat elongate and compressed posteriorly. Mouth transverse, a tentacle about as long as width of eye, on upper part of orbit; also a small one at nostril. Dorsal fin scarcely notched, beginning above the opercle and terminating just in front of caudal. Color in spirits: Yellowish white, with indistinct indications of seven or eight brownish cross bands. A round black dot, slightly smaller than eye, on each side of body, below the notch of the dorsal fin. Head and body with numerous lighter yellowish dots. Dorsal fin with a row of brown dots along middle. Anal and caudal with dark margins. Six specimens, length 1-3.50 inches. Guam, June 14, 1900. *Hab.* Samoan Islands, Marshall Islands, Marianas.

⁷Regardless of any other differences this white pattern of the caudal fin would seem sufficient to warrant this form to stand as a distinct species, for in the thirty specimens before me there is no variation from this type of caudal marking.

FAMILY **PLEURONECTIDÆ**.—FLOUNDERS.GENUS **PLATOPHRYS** SWAINSON.**273-74. Platophrys pavo** Quoy & Gaim. **Tampat.**

Head 3.66; depth 2; eye 6.50; interorbital 3, concave; D. 95; A. 73. Scales 94, the lateral line curved. Maxillary 2.66, the posterior end being on a line with anterior margin of eye. Mandible 2 into head. The posterior two-thirds of the interorbital space is scaly. The cleft of the mouth is of moderate width. The teeth are small, in a single series in each jaw. The whole of the lower eye is anterior of the upper. Body elliptical, ovate, strongly compressed. Anterior profile slightly concave, the snout projecting (more noticeable in old than in young specimens). Lower jaw with a well developed knob at symphysis. Anterior end of maxillary with a small blunt spine. The elevated orbital rims are smooth. Gill-rakers moderate, their length equal to diameter of pupil—10 on lower limb, none on upper. Scales ctenoid. All the fins except pectorals more or less scaled. Fins: The caudal is rounded. The base of the ventral of the colored side is 3 into head, the base of the ventral on the white side being only one-half as long. The dorsal begins on the snout in front of the eye; the longest ray is 2 into head. The upper rays of the colored pectorals are elongated and filiform. The longest ray of anal is about 2 into head. Color in spirits: A mottled yellowish brown, covered everywhere with numerous ocelli of various sizes, those on middle of sides largest, being equal to longitudinal diameter of orbit; these ocelli usually have a minute brown dot in the middle on a small whitish zone, surrounding which is a blue ring with brown margins, the blue zone making up the largest part of the ocellus. There are three large dusky blotches on the lateral line. The dorsal and anal fins are slightly darker in color, the anal with six small dark blotches along its inner half; the dorsal with about eleven of these dusky splotches; otherwise these fins are mottled with bluish, brown, and whitish spots. Colored pectoral with a dusky blotch near its centre. Four specimens, length 1-9 inches. Guam, June 2, 1900. *Hab.* China, Kokas Islands, New Hebrides, Marianas.